

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS

**94th SNAME ANNUAL**

**5th INTERNATIONAL  
EXPOSITION**

**NOVEMBER 1986 ISSUE**

*For creative solutions in a competitive environment look to*

# Canada

## INTERNATIONAL MARITIME EXPOSITION NOVEMBER 19-21, 1986 NEW YORK HILTON

### SOUTH CORRIDOR BOOTHS 618-646

*Company*

CAE Electronics Ltd  
C.P. 1800  
Saint-Laurent, Quebec H4L 4X4  
Tel. (514) 341-6780 Tlx. 05-824856  
Mr. D. W. Dunlop, Manager Marketing

\*C-Tech Ltd.  
P.O. Box 1960, 525 Boundary Road  
Cornwall, Ontario, Canada K6H 6N7  
Tel. (613) 933-7970 Tlx. 05-811538  
Mr. G. A. McBride, Marketing Supervisor

\*Fitzwright Suits Ltd.  
17919 Roan Place  
Surrey, B.C. Canada V3S 5K1  
Tel. (604) 576-9424 Tlx. 04-54208  
Mr. Peter Rowe, Sales & Marketing  
Manager, Survival/Safety Division

\*Greening Donald Co. Ltd  
P.O. Box 430  
55 Queen St. N.  
Hamilton, Ontario, Canada L8N 3J3  
Tel. (416) 528-5971 Tlx. 061-8601  
Mr. Derrick Bayles, Project Manager,  
Kevlar Ropes  
Mr. Paul Anderson, VP Sales, U.S.  
(1-800-367-7373)

\*Indal Technologies Inc.  
3570 Hawkestone Rd.  
Mississauga, Ontario,  
Canada L5C 2V8  
Tel. (416) 275-5300 Tlx. 06-961482  
Mr. Frank Davenport,  
Director of Marketing

\*Kobelt Manufacturing Co. Ltd  
11720 Horseshoe Way  
Richmond, British Columbia  
Canada V7A 4V5  
Tel. (604) 271-2741 Tlx. 04-355853  
Mr. Jack Kobelt, President

*Product/Service*

The CAE integrated machinery control system combines the flexibility of digital computers with the simplicity of ergonomically-designed control consoles employing dynamic color graphics displays. This system offers significant savings in installation, operating, maintenance and training costs.

C-Tech is a leading producer of Omni Sonar- and related underwater acoustic devices for application in commercial fishing, iceberg detection and patrol vessels. It also manufactures cylindrical and planar array transducers, electronic scanners (sonar), and Standard Electronic Modules (SEM) for Nato Navies.

Manufacturers and distributors of Immersion Suits, Helicopter Transport Suits, Handy Elevated Lifting Package (H.E.L.P.), Lifenet, Emergency Position Indicating Radio Beacon (E.P.I.R.B.), Mayday II Strobe lights, and a Thermal Protection Suit.

This wire rope manufacturer, established in 1859, has developed a product line of Kevlar fiber ropes using unique, high strength, flex fatigue resistant designs. These strength members have outstanding potential for mooring and handling lines, dredge and sampling lines etc

Indal Technologies is the leading supplier of support systems for shipboard helicopters including landing assist and securing systems, telescopic hangars, hangar doors, flight decks and the "Helicart," a one person ground handling system for skid mounted helicopters.

Kobelt Manufacturing for many years has been involved in the design and manufacture for propulsion and deck machinery controls and disc brakes. Kobelt can offer a complete line of pneumatic, mechanical and electronic controls as well as propeller shaft brakes up to 50,000 H.P. Bronze and stainless steel construction, competitive pricing, simplicity in engineering and quality controls make Kobelt top of the line throughout the world.

*Company*

\*Marine Industries Limited  
P.O. Box 550  
Sorel, Quebec, Canada J3P 5P5  
Tel. (514) 743-3351 Tlx. 055-61081  
Claude Bourdon, Dir. Sales & Marketing

\*Securiplex Systems, Inc.  
210 Brunswick Blvd.  
Pointe Claire, Quebec  
H9R 1A6 Canada  
Tel. (514) 697-8002  
Tlx. 05-821854  
Contact: Ivan Lamoureux, President  
Lazlo Meyer, Vice President-  
Engineered Products Div.  
John McCambridge, Director,  
Commercial Sales

\*Timberland Equipment Limited  
P.O. Box 490,  
459 Industrial Ave  
Woodstock, Ontario N4S 7Z2  
Tel. (519) 537-6262 Tlx. 064-74133  
Mr. G. Micacchi, Product Manager  
Construction Equipment

\*Wagner Marine (USA) Inc.  
14326 102nd Avenue NE  
P.O. Box 1268  
Bothell, WA 98011  
Tel. (206) 823-1372  
Dan Gideon, President

\*Wilson Machine Company Ltd.  
2299 Lapierre Street  
LaSalle, Quebec H8N 1B7  
Tel. (514) 365-4101 Tlx. 055-66265  
Gordon Wilson, President  
Peter Wilson, Marketing Manager  
Colin Tunney, Sales Manager  
David Marshall, Production Manager

*Product/Service*

Marine Industries Limited offers fifty years' experience in shipbuilding, (military, research, product tankers, cargo, ferries, floating docks) ship repair, conversion, and major refits. Project management, turnkey projects, CAD/CAM System.

Securiplex Systems Inc. engineers and manufactures a microprocessor based FIRESCOPE® damage surveillance and control system integrated with extinguishant systems. Combining state of the art technology with an established engineering reputation, Securiplex meets the vital needs of marine, offshore and naval markets. The company's defense projects integrate such damage control functions as fire detection and suppression, fire main and ventilation control, monitoring and control of fuel and ballast tank levels, and flood control.

Timberland designs and manufactures standard and custom hoists, winches and related accessories for dredges, barges, and rigs. A complete line of anchor and mooring winches, electric, electro hydraulic and diesel powered. Standard and custom built fairleads, deck sheaves and blocks. Stiffleg and shearleg derricks. Oceanographic winches.

Wagner Engineering, Ltd., with modern facilities in North Vancouver, B.C., is a leading producer of hydraulic steering systems, electronic control systems, autopilots, rudder angle indicators and related accessories. Its products are sold in over 60 countries.

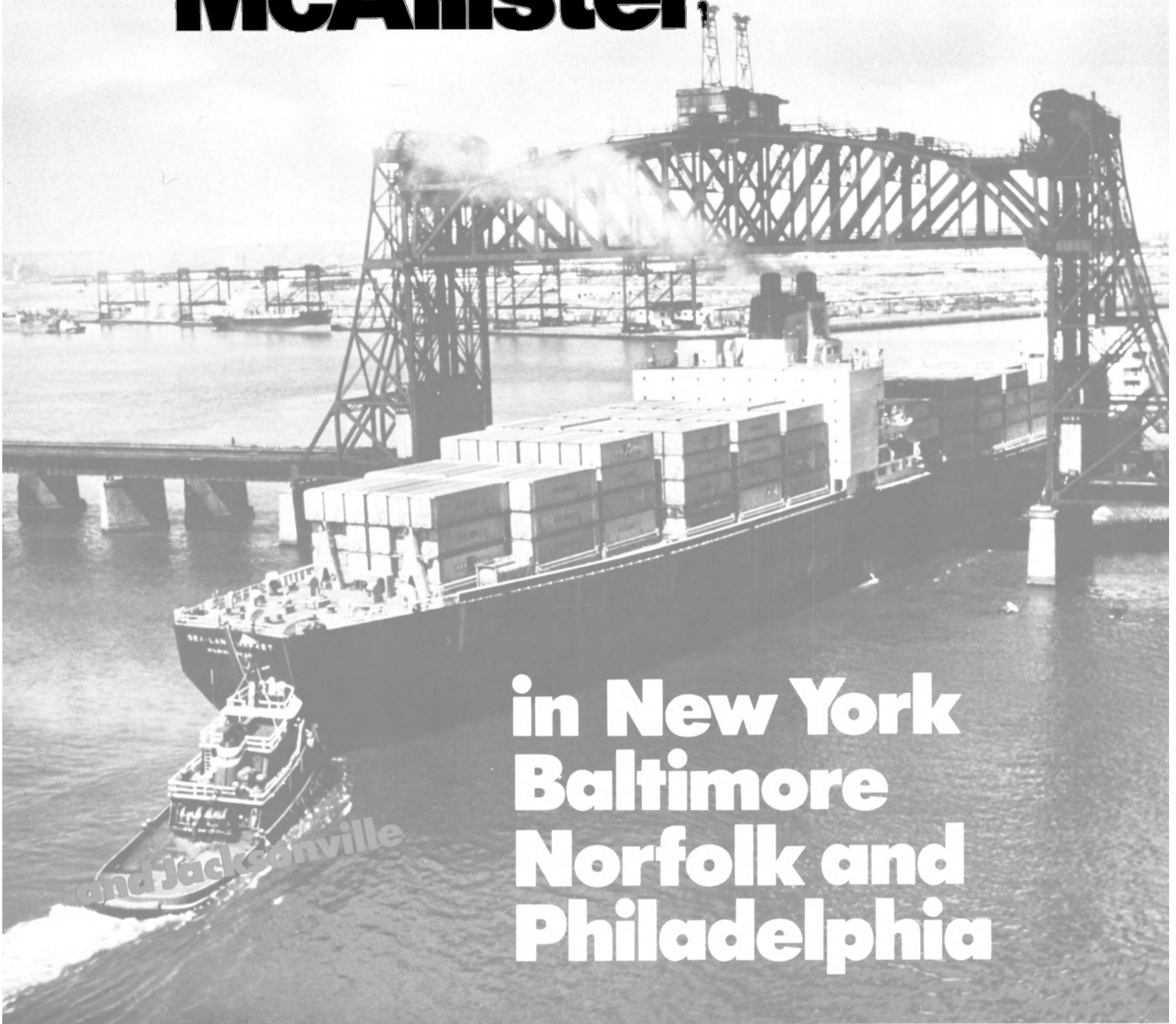
Wilson Machine, established in 1913, is a leading Canadian gear manufacturer. Wilson manufactures for civilian and military marine applications, deck machinery, and radar drives.

*\*Inquiries from potential agents and representatives in world markets most welcome.*



Canadian Consulate General 1251 Avenue of the Americas, New York, N.Y. 10020-1175 Tel: (212) 586-2400

# The biggest call on McAllister



in New York  
Baltimore  
Norfolk and  
Philadelphia

McAllister Brothers Inc. Towing and  
Transportation. 17 Battery Place,  
New York, N.Y. 10004 (212) 269-3200  
Baltimore (301) 547-8678 • Norfolk (804) 627-3651  
Philadelphia (215) 922-6200 • San Juan (809) 721-8888  
Jacksonville (904) 743-9226

**McAllister** 

# ON THE COVER

Photo—David S. Mangelim

**94th SNAME  
Annual Meeting  
&  
5th International  
Maritime Exposition  
—A Preview—  
PAGE 26**

## Dates For Installation Of ARPAs Aboard Ships Other Than Tankers

Regulation 12(j) of Chapter V in the 1981 Amendments to SOLAS 1974 requires an Automatic Radar Plotting Aid (ARPA) on the following ships, excluding tankers, constructed before September 1, 1984: (1) ships of 40,000 gt and larger by September 1, 1986; (2) ships of 20,000 gt and larger, but less than 40,000 gt, by September 1, 1987; (3) ships of 15,000 gt and larger, but less than 20,000 gt, by September 1, 1988.

## Free Reference Guide To Marine Lubricants Available From Chevron

A free, six-page color reference guide to inland and coastal marine lubricants, as well as technical color literature is being offered by Chevron USA of San Francisco, Calif.

This color publication along with the enclosed technical literature, describes the performance and application of Chevron's full line of inland and coastal marine lubricants for use in main and auxiliary engines, reduction gears, compressors and hydraulic systems. The guide covers Chevron Delo Marine and AW Machine Oils, NL Gear Compounds, Marine Oil 220X, Dura-Lith Grease EP2, Polyurea EP, Pinion Grease MS, and Ultra-Duty Grease. In addition, data sheets are included on Chevron Delo Marine Oil 471, 473 and 194.

Chevron Delo Marine Oils are designed for severe duty service in main and auxiliary engines on tow-boats, tugs, workboats, dredge and barge pumps, and other marine applications in river, harbor, coastal and Great Lakes domestic trade.

For a free copy of this six-page guide along with the technical literature on Chevron marine inland and coastal lubricants,

## SAVE up to 300 barrels of oil per year!

### ELIMINATE THAT OLD STEAM HORN

The Kahlenberg **TRITON** Piston Horn is a unique sound producing unit because it requires no compressed air and no diaphragms yet utilizes air vibrations in a tuned sound column. The unit consists of an electric motor driving a piston with a cylinder similar in appearance to an air compressor. Very economical to operate and install. Write for bulletin 92C. The KB-20 electric horn is available in 110 volt, A.C. or 24 volt, D.C. for vessels up to 246' in length.



**KAHLENBERG BROS. CO.**

1986 Monroe St.  
Two Rivers, Wisconsin, 54241 U.S.A.  
414-793-4507

Circle 179 on Reader Service Card

Circle 91 on Reader Service Card

## MARITIME REPORTER and Engineering News

Editorial and Executive Offices  
118 East 25th Street, New York, NY 10010  
(212) 477-6700 • ITT Telex: 424768 MARINTI

**Publishers:** JOHN E. O'MALLEY  
CHARLES P. O'MALLEY  
**Editorial Director:** CHARLES P. O'MALLEY  
**Editor:** ROBERT WARE  
**Senior Editor:** THOMAS H. PHILLIPS  
**Associate Editor:** JOHN SNYDER  
**Editorial Coordinator:** LILIAN IRVINE  
**International Editor:** ROBIN F. BURNETT, MRINA,  
MNI, London, England  
**Advertising Sales Director:** JOHN C. O'MALLEY  
**Regional Sales Managers:** LISA WILLIAMS  
SHARI L. LINKER  
**Production Manager:** MARGE SULLIVAN  
**Circulation Manager:** M. SOTTILE

Advertising Circulation and Sales Offices  
118 East 25th Street, New York, NY 10010  
Telephone (212) 477-6700

### REPRESENTATIVES

**Holland** **MR. TONY KENTER**  
Kenter & Co.  
P.O. Box 130, 7470 AC Goor, Holland  
Telephone: 05470-5005  
Telex: 72028

**Italy** **MR. VITTORIO F. NEGRONE**  
Ediconsult Internazionale  
Piazza Fontane Marose, 3-16123 Genova, Italy  
Telephone: (010) 543.659-268.334-268.513  
Telex: 211197 EDINT I

**Scandinavia** **MR. STEPHAN R. G. ORN**  
AB Stephan R. G. Orn  
Box 184, S-271 00 Ystad, Sweden  
Telephone 0411-184 00  
Telex: 33335 Orn S

**West Germany** **MR. WOLF O. STORCK**  
Schiffahrtswerbung Karl-Otto Storck  
Stahlwiete 7, 2000 Hamburg 50,  
Federal Republic of Germany  
Telephone 040/850 0071

**United Kingdom** **MR. MICHAEL J. DAMSELL**  
Euromedia, Ltd.  
P.O. Box 122, Haywards Heath  
West Sussex RH16 1YF, England  
Telephone: 0444-416845

**Korea** **MR. CHRIS MAENG**  
IPR Int'l PR, INC.  
Yongsan  
P.O. Box 100  
Seoul, Korea  
Telephone: 273-7765  
Telex: MOCNDM K23231

**Japan** **MR. TOSHIO EGUSA**  
Publinetwork, Inc.  
Kaneko Bldg. 4-29-8,  
Shimbashi, Minato-ku, Tokyo 105 Japan  
Telephone: (03) 459-9618  
Fax: 436-1931  
Telex: 2425280 BESNA J

**MARITIME  
REPORTER  
AND  
ENGINEERING NEWS**

118 EAST 25th STREET  
NEW YORK, N.Y. 10010  
(212) 477-6700  
Telex: MARINTI 424768  
ESTABLISHED 1939

Maritime Reporter/Engineering News is published monthly, except twice a month in January, by Maritime Activity Reports, Inc. Mailed at Second Class Postage Rates at Waterbury, CT 06701 and additional mailing offices.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 118 East 25th Street, New York, NY 10010.

Member  
**BPA**

Business Publications  
Audit of Circulation, Inc.

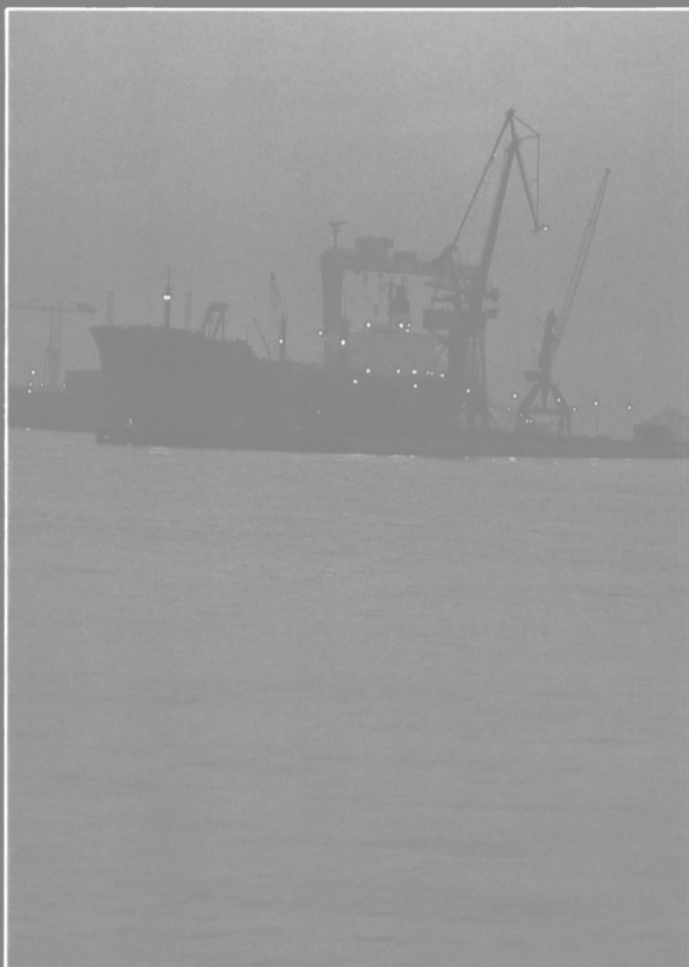
ISSN-0025-3448

No. 12

Volume 48

ALL MATERIAL FOR EDITORIAL CONSIDERATION SHOULD BE ADDRESSED TO ROBERT WARE, EDITOR.

# ANNOUNCING THE NEW BLEND IN MARINE COATINGS

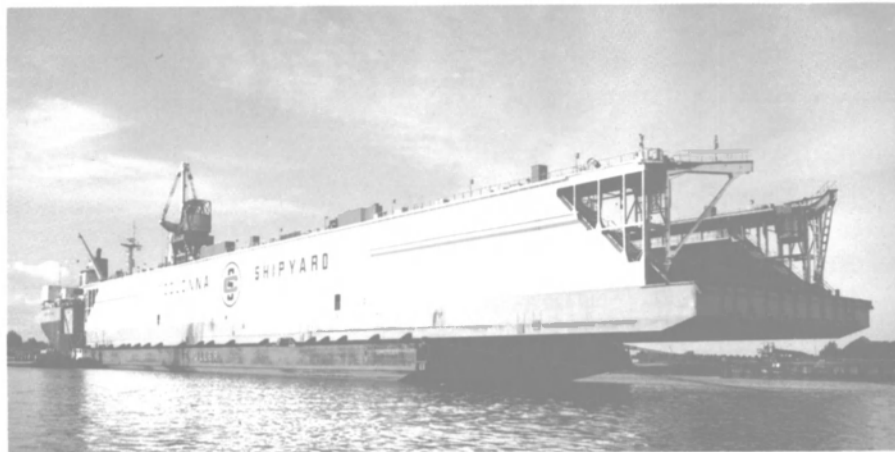


As of January 1, Jotun Marine Coatings and the Valspar Corporation will join forces in North America. The new cooperation will be named **Jotun Valspar Marine Coatings**.

This blend of the worldwide strengths of Jotun with the U.S. manufacturing and distribution capabilities of Valspar will give you the protection that marine coatings provide along with better technical services and sophisticated technologies.

You will be hearing more about Jotun Valspar Marine Coatings soon.





When loaded aboard Mighty Servant 3 for trip from Rotterdam to Norfolk, floating drydock acquired recently by Colonna yard had overhang of about 114 feet.

## Colonna's Shipyard In Norfolk Gets Floating Dock From Holland

Colonna's Shipyard, Inc. in Norfolk, Va., recently acquired a floating drydock 571 feet long and 118 feet wide to enhance its ship-repairing capabilities. Formerly Dock No. 5 of the Amsterdam Drydock Com-

pany in the Netherlands, the big dock was transported across the Atlantic aboard the Mighty Servant 3, a semisubmersible heavy-lift vessel operated by Wijsmuller Transport B.V. of IJmuiden, Holland. The

Dutch transportation and towing company is represented in the U.S. by Wijsmuller (U.S.A.) Inc. of Houston. Wijsmuller operates a fleet of eight heavy-lift, self-propelled vessels similar to the Mighty Servant 3.

The dry transport method was chosen because a trans-Atlantic wet tow would have required extensive and expensive strengthening of the dock. Even then, it would have been necessary to remove two sections of the dock for a wet tow.

The Mighty Servant 3 has a flat unobstructed deck 459 feet long and 132 feet wide. When loaded aboard the vessel, the 571-foot-long drydock had an overhang of 114 feet. Loading of the dock took place in Rotterdam harbor. The dock had been there for some time to undergo inspections on behalf of the new owner.

For the loading operation, the Mighty Servant 3 was partially submerged by pumping water into her ballast tanks. With the deck under water, the drydock was positioned precisely and the ballast tanks were pumped, bringing the vessel back to its normal draft. The procedure was

reversed for the unloading in Norfolk.

For free literature on the facilities and capabilities of Colonna's Shipyard,

Circle 17 on Reader Service Card

For literature containing detailed information on Wijsmuller,

Circle 18 on Reader Service Card

## \$4.2-Million Contract Awarded Oregon Iron For 50-Foot Workboats

Oregon Iron Works Incorporated, Clackamas, Ore., is being awarded a \$4,246,038 firm-fixed-price contract for 50-foot workboats. Work will be performed in Clackamas, and is expected to be completed July 15, 1988. One hundred fifty bids were solicited and 13 offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-86-C-2147).

*THE FIRST NAME IN TOWING  
ON THE TEXAS GULF COAST*



*Suderman and Young tug Gretchen*

*Suderman and Young has set the standard for reliable harbor and coastwise towing services on the Texas Gulf Coast since 1895. You can count on our fleet of tugs manned by skilled crews and equipped with the latest in towing, communication and navigation aids.*

**SUDERMAN  
& YOUNG**  
Towing Company, Inc.

918 World Trade Center, Houston, Texas 77002  
713/227-1128 Cable: SANDY HOUSTON

HOUSTON • GALVESTON • TEXAS CITY • FREEPORT • CORPUS CHRISTI

Circle 111 on Reader Service Card

## NEW! *Windjammer* puts fresh air anywhere you want it

### Portable centrifugal ventilation fans from Robinson are designed for maritime maintenance requirements

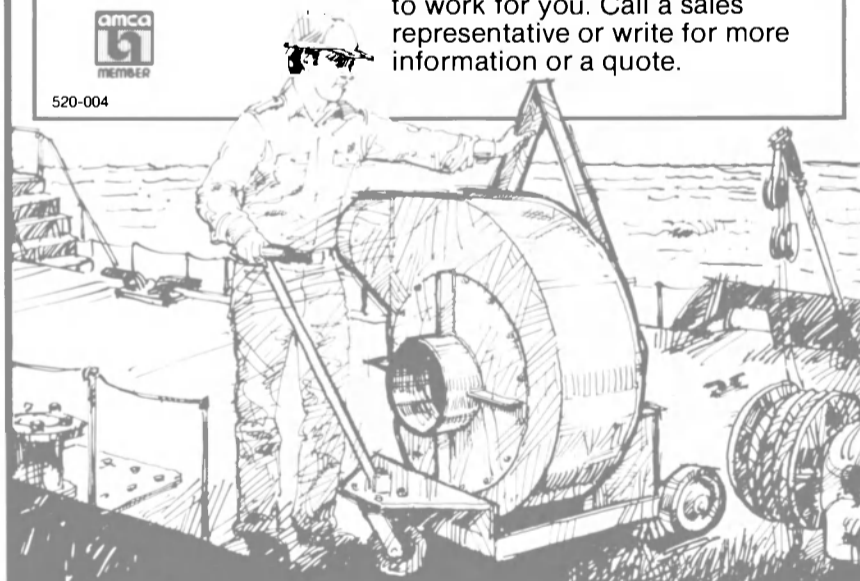
These competitively priced, all-aluminum fans provide exhaust or ventilation for welding and other maintenance needs. Noncorrosive and lightweight, they can be easily rolled into position anywhere.

Windjammer portable fans are available in standard five- and ten-hp units — or we'll design and build to your specifications.

Robinson has been a leader in the fan application industry for more than ninety years. Put our experience to work for you. Call a sales representative or write for more information or a quote.



520-004

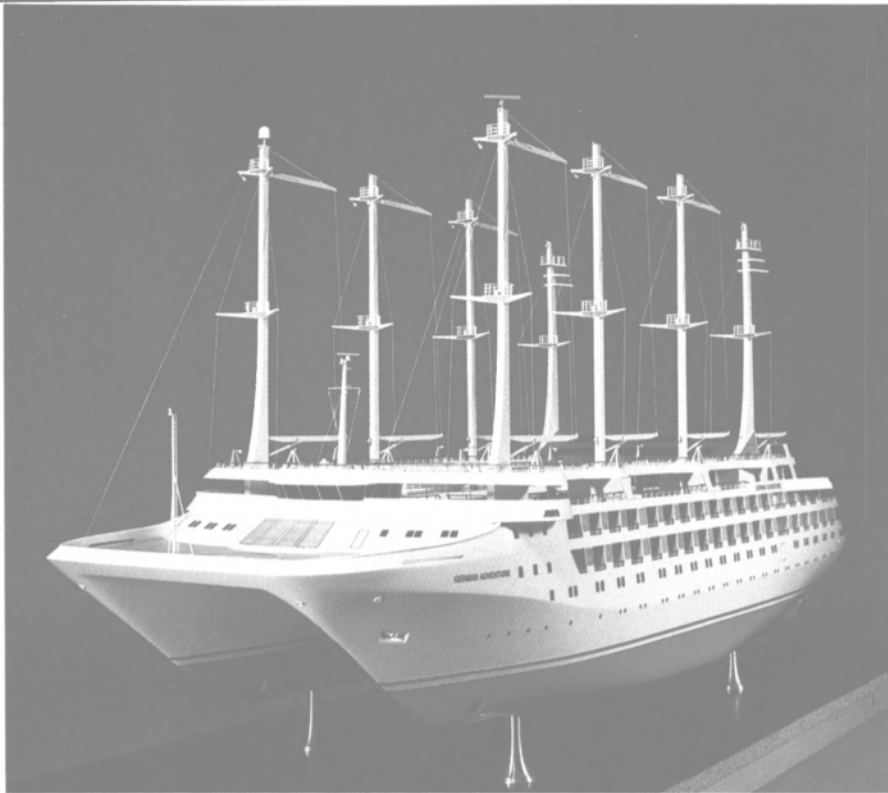


**ROBINSON**  
INDUSTRIES, INC.

P.O. Box 100 • Zelienople, PA 16063 • (412) 452-6121

Circle 301 on Reader Service Card

Maritime Reporter/Engineering News



## Lindenau Introduces Design For Novel 240-Passenger Sail-Cruiser

At the recent International Ship, Machinery and Marine Technology Trade Fair (SMM) in Hamburg, West Germany, the Paul Lindenau shipyard of Kiel introduced a novel design for a catamaran sail-cruiser.

Designed over a two-year period by naval architect **J. Issleib** of Hamburg, the 122-meter-long (400 feet) by 38-meter-wide (about 124½ feet) vessel has eight masts in two lines with a total sail area of about 23,680 square feet.

The new type of vessel integrates the advantages of modern sail catamarans with the high luxury demands that will be required for cruise liners in the future. In addition, passengers will be offered, according to Lindenau, hitherto unknown luxury accommodations and comfort. The sheltered area between the two deckhouses will be designed as a tropical pool garden, also suitable for open-air concerts, theatre events, etc.

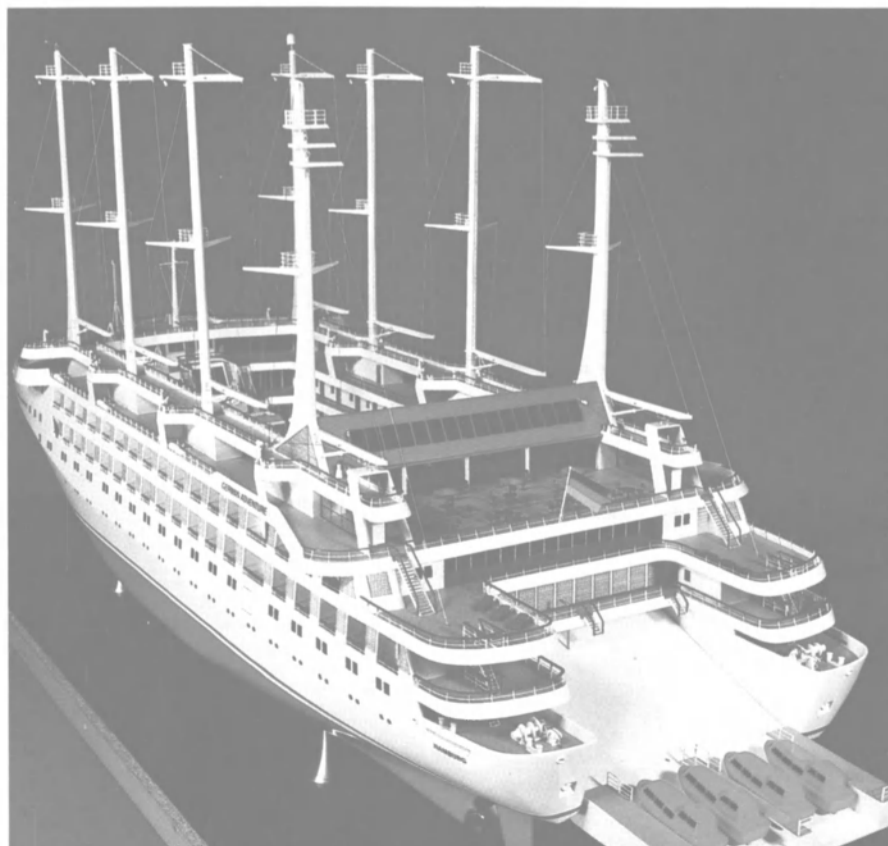
The following advantages were listed by Lindenau as being offered to the catamaran cruise passengers:

- (1) Under sails, the maximum heeling angles will be about 2-3 degrees;
- (2) The sails, therefore, can be used more effectively than on other sail cruiser projects—the catamaran will reach higher speeds, and will therefore have a larger cruise range;
- (3) The vessel also has several spacious deck areas inside and outside, offering outstanding aspects for sports, entertainment, relaxing, etc.;
- (4) All cabins are on the outside—60 percent are provided with loggias and also have inside windows looking onto the pool garden; and
- (5) The approximately 3,229-square-foot bathing and boat platform allows passengers a generous amount of room for bathing.

It is estimated the 240-passenger sophisticated catamaran will require a period of about 18 to 20 months for construction from date of order.

A brochure is available with a complete description of the design for the catamaran sail cruiser. For a free copy,

Circle 61 on Reader Service Card



## \$3.2-Million Modification To Martin Marietta For Destroyer MK-41 VLSs

Martin Marietta Aerospace, Baltimore, Md., is being awarded a \$3,217,288 modification to a previously awarded firm-fixed-price contract for MK-41 VLS (Vertical Launch System) for the DD-963 and DD-991. The work will be performed in Baltimore, and is expected to be completed in December 1987. The Naval Sea Systems Command, Washington, D.C., is the contracting activity.

## State Marine To Provide All Services Of Former State Boat Corporation

State Marine Corporation is the new company that will represent the diversified marine activities of the former State Boat Corporation of Houston. All advertising, public relations, and sales are now being conducted under the State Marine name.

The new company will continue to provide a full range of vessels, support, and waste management for the offshore industry. In order to offer customers high-quality service at lowest possible cost, State Marine has greatly reduced its overhead by consolidating and moving its operations to a new headquarters location at 3701 Kirby Drive, Houston, TX 77098; (713) 528-6935.

## Korkut Engineers Offers Computer Programs For Commercial Use

Korkut Engineers, Inc. of Metairie, La., is releasing its HYDROS and BENDER programs for commercial use.

Korkut Engineers started to establish their CAD system with TI-980A and TI-990 minicomputers in FORTRAN 66 language in 1964. During that time they were used in house only. Recently the programs were converted to FORTRAN 77 and for IBM-PC or compatible microcomputers.

These programs have been developed to construct the total Korkut Engineers CAD system called KORCAD. One of the main subcad groups in the system is CADNAV, which has the following programs: HYDROS—hydrostatics, cross curves, tank soundings and calibrations, inclining experiment and input preparation; BENDER—bending moment and deflections, weight distribution and correction, inclining experiment, geometric properties and input preparation.

These programs are designed to be user friendly with error traps and protections. Inputs can be made by the users through the console by input preparation programs built in the system. Geometric inputs are common in all CADNAV programs.

Most of the other programs which

make up the KORCAD system are working individually and will be subcaded and released in the near future. The basic aim is to make the KORCAD system self explanatory and self sufficient and easy for mechanical engineers and marine offshore structural engineers.

For complete details and free literature,

Circle 93 on Reader Service Card

<sup>TM</sup>  
**INFRAFONE**

— keeps your boiler clean

**Yes please, send more information!**

Mail this coupon to

**INFRASONIK AB**

S-612 20 Finspong, Sweden

Name .....

Company .....

Dept .....

Address .....

City .....

Country .....

or use the reader enquiry service.

Circle 107 on Reader Service Card

## Keel Laid At Rauma Yard For Soviet Multipurpose Antarctic Research Ship

Rauma-Repola's Rauma shipyard in Finland recently laid the keel of a 7,600-dwt hydrometeorological research vessel scheduled for delivery to V/O Sudoimport of Moscow in the fall of 1987. This vessel will serve as an icebreaker, research, supply, and passenger ship in the Antarctic region.

During the past few years several countries have shown increasing interest in the Antarctic, and there should be more activity there in the near future. The Soviet Union, for example, operates seven research bases on the Antarctic Continent, and they are the first to order an expedition ship in support of their scientists there.

The new vessel will have an overall length of 459.3 feet, beam of 75.5 feet, and draft of 27.9 feet. She is

designed with an icebreaker hull for operation in -40C temperatures. She will accommodate 250 passengers, 90 of them scientists, ship's crew, and helicopter crew; the remaining 160 will be personnel traveling to and from the bases.

The vessel is also a multipurpose freighter carrying containers, vehicles, aircraft, and various liquids and explosives. In addition to being a supply vessel, she will be a floating research center with 10 laboratories

for hydrological, hydrochemical, hydrobiological, aerological, meteorological, and ice research.

For information and free literature on Rauma-Repola's facilities and capabilities,

Circle 49 on Reader Service Card

## Dixon Named Assistant Manager-Export Pricing And Logistics At Zim



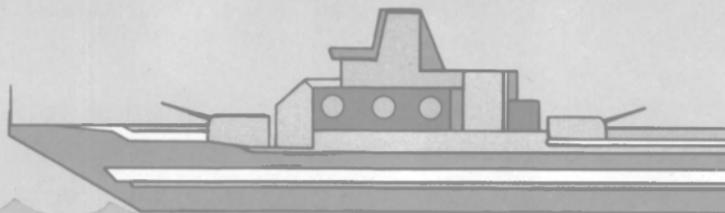
Greg Dixon

Joseph Merante, senior vice president of marketing and sales for Zim-American Israeli Shipping Company, Inc., has announced the promotion of Greg Dixon to assistant manager of export pricing and logistics for North America. He will be responsible for Zim Container Service's export services to the Far East, which includes overseeing coordination of vessel allocations and equipment loadings.

Mr. Dixon has more than 20 years of experience in the transportation industry. He joined Zim's sales department in 1976, and most recently served as an account representative.

Zim operates more than 70 vessels calling at some 250 ports worldwide.

## Marine Components for Precise Hydraulic & Pneumatic Control.



### Reliable, Efficient and Proven Marine Valves— From Parker.

Parker Colorflow® Valves assure precise and repeatable control in marine fluidpower systems. All are designed, manufactured, and tested to rigid tolerances to keep internal leakage to a minimum.

What's more, Parker offers more off-the-shelf options than any other manufacturer. This assures faster and more economical designing, installation, and delivery. Specify Parker ParTrol/Colorflow® needle, flow and check valves, or Colorflow® pressure compensated fluid control valves for your next marine application — ship or shore.

For more Parker marine valve product information, call or write for Catalog Packet FO6.



Parker Hannifin Corporation  
Hydraulic Valve Division  
520 Ternes Avenue  
Elyria, Ohio 44035  
216/366-5200

Circle 288 on Reader Service Card

### Pneumatic Controls And Systems For Fixed Pitch & Controllable Pitch Equipped Vessels.

Schrader Bellows top quality propulsion controls and systems allow the use of ship air to convert commands into precise, pneumatic signals that operate our clutch control panel.

This responsive, reliable pneumatic system uses one or more operator-control stations in circuit with a pneumatic clutch-control panel and various auxiliary devices. Both direction and speed can be controlled with one simple lever movement.

If more than one operator-control station is used, auxiliary equipment allows command of the propulsion-control system to be quickly transferred from one station to another.

For more information on Schrader Bellows propulsion control systems, call or write today for our Propulsion Controls brochure.

Schrader Bellows  
Division of Parker Hannifin Corporation  
200 West Exchange Street  
Akron, Ohio 44309  
216/375-5202



Circle 289 on Reader Service Card

### THE ROTARY ACTUATOR YOU CAN DEPEND ON TO ROTATE, SLEW, LIFT, TRANSFER, MIX, OR LOAD — FROM PARKER.

Parker's rack & pinion actuators are built to outperform and out-last all other actuators in the most demanding applications.

They have a proven record of success worldwide in the industrial, military, marine, and aerospace industries. The U.S. Coast Guard, U.S. Navy, and NASA specify Parker actuators for their demanding applications. In the marine industry, our actuators are being used to swing booms, open sea water valves, operate hatches, raise antennas, and perform many other functions.

Depend on Parker to have the right actuator for your next application.

For your free copy of our full-line marine catalog, write or call the Rotary Actuator Division or your local Parker Distributor. Ask for Catalog packet K-39.



Parker Hannifin Corporation  
Rotary Actuator Division  
9948 Rittman Road  
Wadsworth, Ohio 44281

Circle 290 on Reader Service Card

### Parker Takes the High Cost Out of Mil-Spec Filters.

Parker Offers Many Designs Meeting the Demanding Requirements of Military Applications.

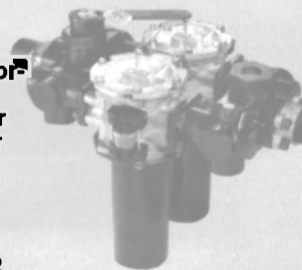
- Custom designs meeting MIL-S-17849 (duplex)
- Commercial designs accepting elements conforming to:

Mil-F-24402  
Mil-F-81836  
Mil-F-27656  
Mil-F-5504

Mil-F-83860  
AN6235-4A  
AN6236

Designed to  
meet MIL-S-901C  
& MIL-STD-167B.

For more information on Parker low cost/high performance Mil-Spec Filters & elements, call or write our Military Sales Manager for Catalog Packet E-41.



Parker Hannifin Corporation  
Filter Division  
16810 Fulton County Road #2  
Metamora, OH 43540  
419/644-4311

Circle 287 on Reader Service Card

### Free Color Brochure On Broadcast Systems Offered By SPT Ltd.

A free full-color, eight-page brochure on their line of general broadcast and entertainment systems is now available from SPT Ltd.

The new publication details SPT's radio receiver, control, cassette player and power amplifiers for marine (merchant and military), offshore- and land-based operation. The units are designed and manufactured by SPT, ensuring that SPT customers have a single source for broadcast, alarm and entertainment systems. Components for the units are selected for their known life and low-failure rate, and are purchased only against internationally accepted technical specifications.

The brochure has color photographs of all the units as a single system and individually, illustrating the flexibility and features offered by SPT equipment.

For a free copy of this SPT brochure,

Circle 30 on Reader Service Card

The Fluidpower Company





## \$40-Million MSC Contract To Moss Point Marine To Construct Army LSVs

The Navy's Military Sealift Command (MSC) has awarded a contract on behalf of the Army for the construction of four Logistic Support Vessels (LSV). They will be primarily used to transport cargo from ship to shore and from beach to beach and through inland waterways in intra-theater lift operations.

The contract, in the amount of \$40,797,358, was awarded to Moss Point Marine of Escawtapa, Miss. MSC acted as purchasing agent for the Army because of its extensive experience in securing shipping services for the Department of Defense. MSC's primary mission is to provide sea transportation of equipment and supplies for military operations.

With bow and stern ramps, the ships will be able to load and unload wheeled vehicles in what is known as "roll-on, roll-off" operations and will be able to transport cargo directly to shores not accessible to deep-draft vessels.

The LSVs will have a length of 272 feet 9 inches, a 60-foot beam and a 12-foot operating draft. They will be powered by 3,900-horsepower engines and will be equipped with bow thrusters. They will have a speed of 11.6 knots and will be able to carry a minimum of 2,000 short tons of vehicles, containers and general cargo.

The contract runs to March 1988 and calls for the first ship delivery in September 1987. A total of 147 companies were solicited for proposals. Three offers were received and Moss Point Marine was determined to be the successful bidder.

## Weeks Stevedoring To Buy Tug From MarAd

The twin-screw tug Ocean Star will be sold by the Maritime Administration for \$1,011,000 to Weeks Stevedoring Co. Inc., Cranford, N.J. The tug, which was built in 1976, was taken over by MarAd after a default by its previous owners, L&L Marine Services Inc. of St. Louis, MarAd reported.

## Drew Ameroid Offers Free Literature On Ameroid OWS Degreaser

Drew Ameroid Marine, Boonton, N.J., has received approval from Hodge Separators Limited for the use of Ameroid® OWS quick separating degreaser in the Victor Oily Water Separators.

Ameroid OWS quick separating degreaser is a superior solvent emulsifying detergent for general engine room degreasing and cleaning of bilges without affecting the operation of the oily water separators. Over 1,400 vessels are now using Ameroid OWS which is becoming more important with meeting the Marpol discharge regulations.

As a result of their testing, Hodge said they would recommend Ameroid OWS over conventional cleaning agents. Ameroid OWS, when used as directed, allows the oil and water to separate in the oily water separator thus allowing the separator to work as it was intended.

For free literature on Ameroid OWS or any other Drew Ameroid Marine products and services,

Circle 76 on Reader Service Card

## Gold Key Asks Title XI To Build \$10.5-Million Ocean Passenger Vessel

The Maritime Administration has received an application from Gold Key Cruises, Inc., 3119 S.W. 27th Avenue, Miami, Fla., for a Title XI guarantee to aid in financing the construction of an ocean passenger vessel.

The twin-screw, geared diesel vessel would operate in the U.S. and West Indian waters, accommodating 114 passengers.

Moss Point Marine, Inc. of Escawtapa, Miss., is the proposed builder, with an indicated delivery date of December 1987.

If approved, the Title XI guarantee would cover \$7,912,500, or about 75 percent of the estimated actual cost of \$10,550,000.

# CUMMINS MARINE GENERATOR SETS... 37-925 kW

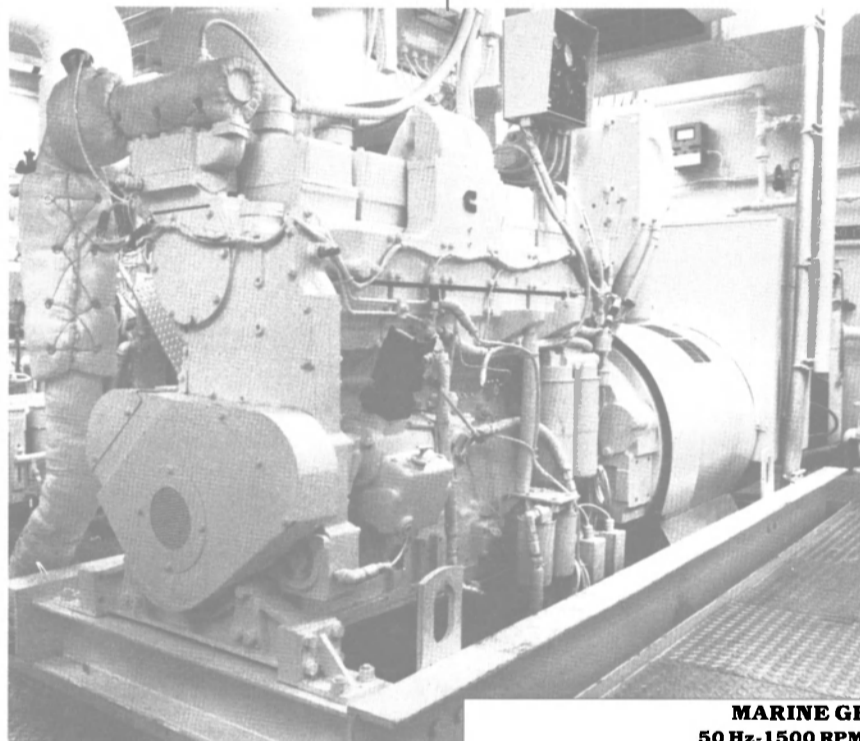
Cummins offers a complete line of marine generator sets designed for performance, reliability and durability in a broad range of 37 to 925 kW. And, with Cummins

you always get high quality, on-time delivery, and fast, dependable service.

Cummins marine generator sets are available with heat exchanger, radiator, keel or remote cooling. Other available optional equipment includes: base rails, isolators, mufflers, electric or air starting, engine control panel, generator control panel, manual or automatic paralleling, alarm system, and Cummins EFC, American Bosch or Woodward governors.

Cummins generator sets are available with Marine Agency Certification. For specific agency approved ratings, contact Cummins Engine Company.

Cummins has more than 300 Marine Distributors and branches located in over 160 countries. The Cummins Distributor can provide complete technical and pricing information on Cummins shipboard generator sets, or you may write: Cummins Marine Generator Sets, Cummins Engine Company, Inc., Box 3005, MC 60403, Columbus, IN 47202-3005, U.S.A.



MARINE GENERATOR SETS

Model	50 Hz-1500 RPM		60 Hz-1800 RPM		Weight kg. (lbs.)
	Rated BHP	Max Cont.* kW	Rated BHP	Max Cont.* kW	
4B3.9G/GC	52	33	61	37	658 (1450)
4BT3.9G/GC	71	40	82	50	687 (1514)
6B5.9G/GC	90	45	97	55	835 (1840)
6BT5.9G/GC	113	65	134	72	865 (1905)
N-855G/GC	160	110	195	125	2295 (5055)
NT-855G/GC-2	265	175	320	215	2586 (5695)
NT-855G/GC-3	310	205	355	235	2651 (5840)
NTA-855G/GC	322	215	385	260	2747 (6050)
NTTA-855G/GC-1	380	255	420	285	2851 (6280)
KT19-G/GC	380	255	420	285	3330 (7335)
KTA19-G/GC-1	425	285	505	335	3487 (7680)
KTA19-G/GC-2	450	355	525	360	3575 (7875)
VT28-G/GC	530	360	620	420	5008 (11030)
VTA28-G/GC-1	614	410	690	465	5471 (12050)
VTA28-G/GC-2	614	410	750	510	5650 (12445)
VTA28-G/GC-3	745	510	—	—	5766 (12700)
KT38-G/GC	750	515	910	625	7377 (16250)
KTA38-G/GC-1	850	575	1030	700	7416 (16335)
KTA38-G/GC-2	890	615	1085	750	7872 (17340)
KTA50-G/GC-1	1180	815	1350	925	8989 (19800)

\*0.8 Power factor. KW rating may vary depending on voltage required. Ratings shown are approved by the various marine agencies.



©Cummins Engine Company, Inc.



**NOBODY KNOWS DIESELS BETTER**

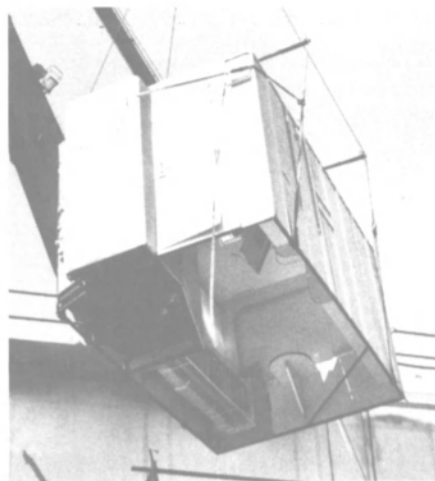
Circle 72 on Reader Service Card

## Wärtsilä To Produce Ship Accommodations In Korea

Wartsila Accommodation Systems, Korea Ltd., a company producing ship accommodations, was recently established by Wartsila in the Republic of Korea. The company, in which Wartsila is major shareholder, is situated in Masan near major shipyards.

The first delivery from the factory in Korea will take place at the end of this year and will comprise ship cabins for two RO/RO cargo vessels. Wartsila has already delivered shower room units from Finland to most South Korean shipyards.

The Wartsila Piikkio Works is also delivering cabins for a car/passenger vessel that will be built at the Split shipyard in Yugoslavia for the Finnish shipowner's SF-Line. This vessel is the seventh passenger vessel to be built using the Wartsila Accommodation System. The cabins will be shipped completely out-



Prefabricated Wärtsilä cabin is moved in a single lift to its final place on board.

fitted. The contract includes an option for cabins for a second ship.

According to the manufacturer, the success of the Wartsila Accom-

modation System is basically due to flexibility, high quality and efficient prefabrication. Ship cabins are also built with the Wartsila System under license in Great Britain, Norway and Italy.

Wartsila, a large internationally oriented company, has a worldwide reputation as a builder of luxury cruise liners and advanced passenger/car ferries.

For more information and free literature,

Circle 15 on Reader Service Card

## Sansone Appointed New Vice Commander For MSC


Wallace T. Sansone, a civilian, has assumed the post of Vice Commander of the U.S. Navy's Military Sealift Command. He replaces Rear Adm. Richard F. Donnelly, who has retired. Mr. Sansone has served as MSC Deputy Commander since 1982. Prior to then he was associate administrator for maritime aids at the Maritime Administration.

## Todd Declares Dividends On Preferred And Common

The board of directors of Todd Shipyards Corporation has declared a quarterly dividend on both its Series A Preferred and Common Shares. This is the 27th consecutive quarter that Common Share dividends have been declared.

By this action, Todd advanced the declaration and payment of quarterly Common Share dividends by one month. The company expects quarterly dividends on both classes of stock will be considered by the board during regularly scheduled meetings in December, March, June and September of each year.

Todd's West Coast facilities have a current U.S. Navy overhaul backlog that includes eight Hamilton Class Coast Guard cutters, three Ticonderoga Class Aegis cruisers, one Spruance Class destroyer, one Garcia Class frigate, two Perry Class frigates, and four Sacramento Class combat support ships. In addition, the San Pedro yard is constructing two Perry Class frigates.



### TIME FOR A SWITCH

**After 20,000 cycles, when most mechanical switches are through, ELDEC solid-state switches are just beginning.**

In fact, lifespans of over one million cycles are typical. But that kind of reliability is no good if the electronics can't survive the marine environment.

**ELDEC non-contacting switches can stand up to the sea.**

- Encased in non-corroding, stainless steel.
- EMI hardened to exceed MIL STD 461B, Class A4.
- Operating range from -30° to +65°C.
- Meets MIL STD 901C, Grade A, Class 1 for shock.

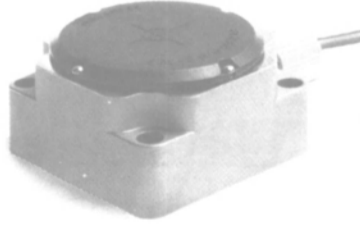
**Two wire AC and three wire DC switches for direct mechanical replacement.**

**The price is right.**

Purchase price is competitive with the best quality mechanical switches. And with less maintenance and replacements, life cycle cost savings are unsurpassed.


**Send for more information today.**

Once you compare, you'll agree, it's time for a switch.



**COMMITTED TO PERFORMANCE**

Eldec Corporation, Lynnwood, Washington USA  
Tel. 206-487-4000 • TWX: 910-449-0873

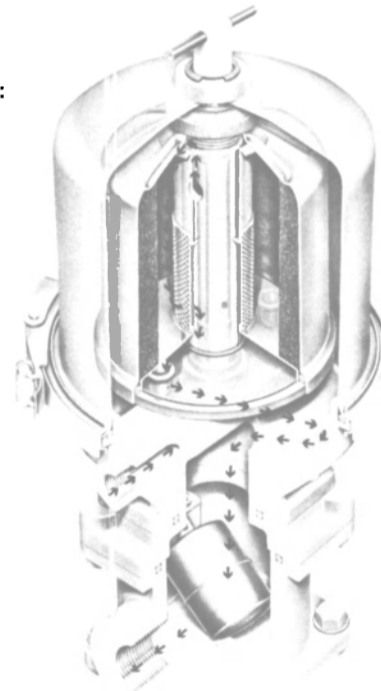


Copyright © 1986 Eldec Corporation

Circle 181 on Reader Service Card

## SPINNER II® CUTS ENGINE WEAR IN HALF! . .

**Centrifugal force: The key to the Spinner II centrifuge's efficiency.** Uses your engine's oil pressure to generate centrifugal force up to 3,500 times the force of gravity.



The centrifugal force does two things. First, it slings even the tiniest dirt particles (down to less than one micron!) out of the oil and onto the centrifuge bowl wall where they accumulate and are kept from recirculating. Second, the force is so great, it compacts the dirt particles into a dense cake on the bowl wall.

SPINNER II oil cleaning centrifuges have been performing for more than 20 years—all over the world—in equipment made by many major engine manufacturers throughout the world and in the United States. The SPINNER II oil cleaner can be used in virtually any engine application as well as in the lube systems of turbines, compressors and gearboxes, in hydraulic oil applications and almost anywhere that really clean oil is important.

WRITE TODAY FOR OUR FREE BROCHURE

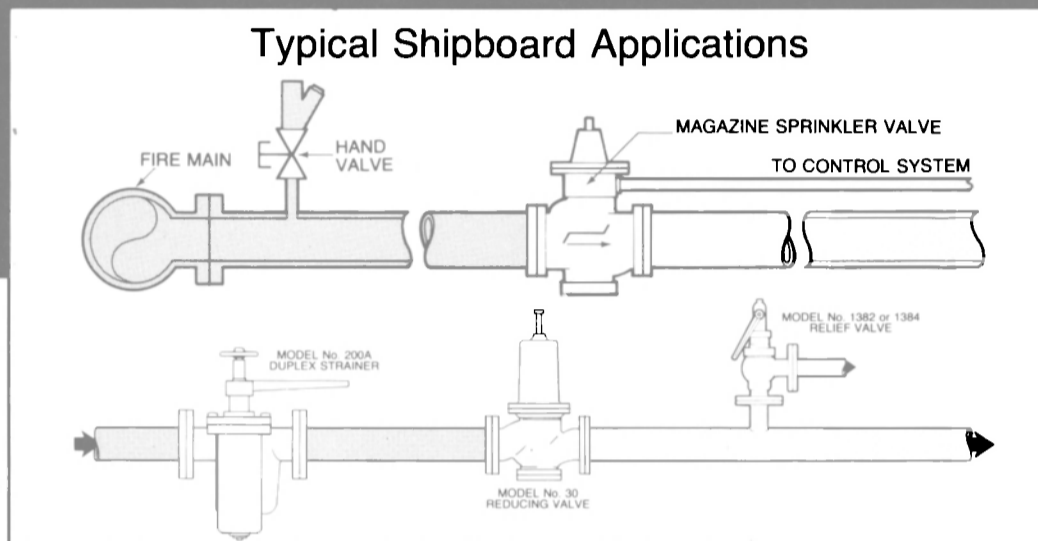
## SPINNER II® Oil Cleaning Centrifuge

Warehouse Supplier  
650 Whitehead Road

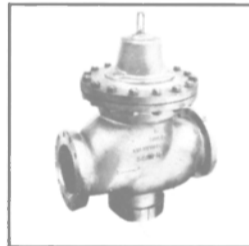
Office 609-394-2194  
Lawrenceville, N.J. 08648

Circle 109 on Reader Service Card

# Performance *and* Delivery That's Dependable



## Bailey Valves and Strainers For Marine Applications



**Model 442M**  
Magazine Sprinkler Valve (Manufactured to MIL-V-17501E, Type 1)  

- Opens fully when activated to provide seawater to sprinkler system
- Sizes 1" through 8"



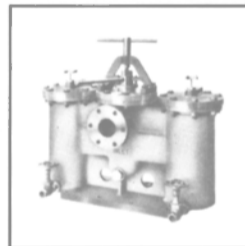
**Model 1384**  
Pressure Relief Valves (Manufactured to MIL-V-24332)  

- Provide intermittent relief service on salt water lines to protect piping and equipment
- Sizes 1/2" to 4"
- Flanged per MIL-F-20042 or Sil-braze per MIL-F-1183



**Model 30**  
Pressure Reducing Valve (Manufactured to MIL-V-2042D)  

- Provides accurate regulation of pressure on salt water service
- Sizes 1/2" through 6"
- Flanged per MIL-F-20042 and Sil-braze per MIL-F-1183



**Model 200A**  
Duplex Strainer (Manufactured to MIL-S-17849D, Type 2, Class II)  

- For salt water applications where service cannot be interrupted
- Sizes 3/4" through 8"
- Flanged per MIL-F-20042

Since 1924 Bailey has been a supplier of strainers and control valves to the marine market. Bailey products are backed by dependable engineering and reliable delivery schedules.

 **Bailey** Automatic Control Valves, Strainers, Polyjets

Bailey, Division of CMB Industries, P.O. Box 8070, Fresno, CA 93747 • (209) 252-4491 Telex: 33-7616 CMB FSO

Circle 121 on Reader Service Card

## New York Port Engineers Discuss Computerizing Diesel Fuel Quality

The first meeting of the 86-87 season by The Society of Marine Port Engineers New York heard a paper entitled "Computerizing Fuel Quality for Diesel Engines," prepared by **William L. McCarthy**, **Gregory J. Shumski**, and **Matthew F. Winkler**, all of Seaworthy Systems, Inc. of Essex, Conn. The paper was based on a study that

Seaworthy made in cooperation with several shipowners and under the auspices of the Maritime Administration.

Vessel operators have traditionally purchased bunker fuels based upon price alone. Those who have considered fuel quality have generally concerned themselves with viscosity or density only. Seaworthy Systems, with the cooperation of Exxon USA, Interlake Steamship, Titan Navigation, Hvide Shipping, and Stolt-Nielsen has developed a

versatile tool designed to aid purchasing personnel in the evaluation and selection of fuel oils for marine diesel power plants. This software system is intended for use as a shoreside management tool that could potentially save more than \$200,000 per ship-year in fuel purchasing costs, and even more in premature maintenance cost avoidance.

By using the system, purchasing personnel are able to evaluate the best fuel choice among available

bunkers from the standpoint of both cost per unit energy and compatibility with the given vessel's engine and fuel system. Operating personnel are made aware of potential operational and maintenance impacts, should a purchased fuel not meet its quoted specifications. The system is also capable of selecting the best value fuel for all diesel engines and fuel treatment system configurations presently found aboard U.S.-flag oceangoing merchant ships.

## VESSEL TRAFFIC MONITORING      PRECISION RADAR NAVIGATION PORT MANAGEMENT

RADAR DIGITAL SYSTEMS (RDS) is a systems integration and management consulting company in the field of RADAR DATA REMOTING and RADAR DISPLAY PROCESSING, ELECTRONIC CHART DISPLAYS and MICROCOMPUTERS FOR DATA BASE AND NAVIGATION MANAGEMENT. Using these disciplines three (3) low cost systems using the latest technology and fully-developed equipment are now available to solve a range of maritime navigation and traffic management requirements:

A VESSEL TRAFFIC MONITORING SYSTEM (VTM) consisting of a low cost land-based marine radar remoted on telephone lines to an electronic chart display integrated with a radar color video display. All vessel movements are detected and plotted in real-time on a display containing the precise chart of the area.

A PORT MANAGEMENT SYSTEM (PMS) consisting of the VTM system above plus a microcomputer for resource data base management. This system provides the user with a picture of current port status, all vessel locations, projections of current and future revenues and an allocation plan of all port resources in real-time on a color TV chart display.

A PRECISION RADAR NAVIGATION SYSTEM designed for hydrographic survey, dredging operations, waterway navigation, vessel positioning and offshore rigs. It integrates a high accuracy, short range marine radar with a digital raster color display and a navigation computer to provide autonomous, precise navigation with accuracies to 1-2 meters.

For more information contact:

RADAR DIGITAL SYSTEMS - 10594 Combie Road, Auburn, CA 95603 (916) 269-1777  
Circle 161 on Reader Service Card

## \$6-Million Navy Contract To Science Applications For Radiac Meter Parts

Science Applications International Corporation, San Diego, Calif., is being awarded a \$6,057,400 provisioned items order to provide 1,433 electronic spare parts for radiac meters used on ships. Work will be performed in San Diego, and is expected to be completed in October 1987. The Navy Ships Parts Control Center, Mechanicsburg, Pa., is the contracting activity (N00039-85-C-0219).

## Woodward Governor Co. Appoints Pete Gomm

**Bob Pope**, president of Woodward Governor Company, has announced the appointment of **Pete Gomm** as general manager of the Engine and Turbine Controls Division in Fort Collins, Colo.



Pete Gomm

Mr. Gomm moved into his new post following the retirement of **Norm Alvis**, former vice president and general manager of the Engine and Turbine Controls Division. He had been assistant general manager since the position was established following the recent consolidation of the International Division and the Engine and Turbine Controls Division.

Mr. Gomm is a mechanical engineer with a strong background in international management. Prior positions held include general manager of the International Division, and general manager of Woodward facilities in Japan and the Netherlands. A native of Southhall, England, Mr. Gomm started his Woodward career at the Woodward plant in Slough, England.

Woodward Governor Company designs and manufactures controls for prime movers. Corporate offices are in Rockford, Ill.

For further information and complete details on the products offered by Woodward Governor Company,

Circle 94 on Reader Service Card

## ONLY THE BEST IS GOOD ENOUGH!

### IP SAFETY LIFTING CLAMPS

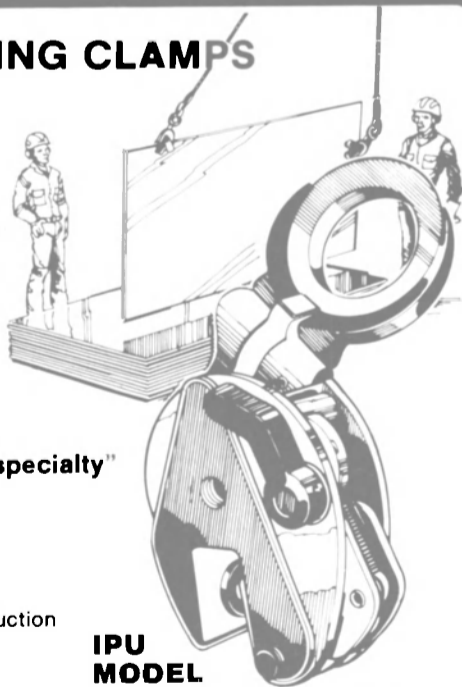
IP is your guarantee of superior quality, safety and economy.

Over 521 models to choose from. Each clamp is individually tested and comes with original certificate of test. IP clamps and parts are available from the country's largest stock for immediate delivery.

"Custom clamps are our specialty"

#### IP CLAMPS

- bite tight right from the start
- last longer
- cost less to repair
- have fewer parts
- lift and turn 180° without reduction of safe working load
- are fully guaranteed
- come complete with original certificate of test.



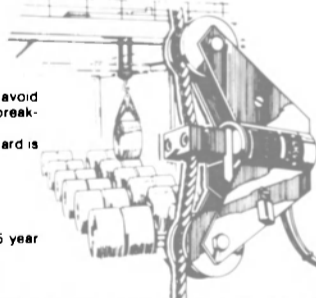
#### IPU MODEL

SAFE AND SURE MULTI-DIRECTIONAL LIFTING COMBINED WITH EXTENDED CLAMP LIFE AND IMPROVED PRODUCTIVITY

### PIAB LKV OVERLOAD CRANE GUARD

Prevent accidents and avoid costly equipment break-downs

- The LKV Overload Guard is
- Easy to install
  - Widely proven
  - Cost effective
  - Tamper proof
  - Weather proof
- Preset safety with a 5 year guarantee



### WIRELOCK® SOCKETING COMPOUND

The simplest system of attaching any standard wire rope socket that permits the socket to be put into service within 60 minutes of pouring at any temperature without the additional process of heating. 100% efficient, strengthens in cold temperatures and improves wire rope fatigue life



WIRELOCK® IMPROVES PRODUCTIVITY!



THE SAFEST,  
MOST ECONOMICAL,  
MOST RELIABLE.

See our advertisements  
in the Thomas Register

Inter Product Inc.  
Avon St. Business Center P.O. Box 1848.  
Charlottesville, Virginia 22903 (804) 296-5668

Strider-Resource  
129 King Rd. E.  
Nobleton, Ontario L0G 1N0  
Toronto (416) 859-3901  
Telex 06-964553

Circle 167 on Reader Service Card

## OSG And P&O To Sell Jointly Owned LPG Fleet To Norwegian Owners

The Overseas Shipholding Group (OSG) of New York, and The Peninsular and Oriental Steam Navigation Company (P&O) of London announced that they have reached agreement in principle to sell their jointly owned liquefied petroleum gas and chemical gas ocean transportation business to Kvaerner Industrier A/S of Oslo, in association with other Norwegian interests. The consideration for the total business, comprising nine LPG carriers and chartered-in tonnage, is approximately \$80 million. The transaction is subject to the execution of definitive agreements.

## Navy Awards \$9.2-Million Contract To Systems Management

Systems Management American Corporation, Norfolk, Va., is being awarded a \$9,243,539 firm-fixed-price letter contract for 27 AN/UYK-62(V) Submarine Production Units (SNAP II) for shipboard use. Work will be performed in Norfolk, and is expected to be completed September 30, 1987. The Space and Naval Warfare Systems Command, Washington, D.C., is the contracting activity (N00039-86-C-0592).

## Free Color Brochure On Fincantieri CNI's Diesel Engines Division

The Diesel Engines Division of Fincantieri Cantieri Navali Italiani S.p.A., a member of the IRI Group, and one of Europe's major shipbuilding and diversified organizations, is offering a free full-color brochure on their production facilities at Trieste, Italy.

The Trieste factory of the Division, which covers an area of 530,000 square meters, builds G.M.T. design engines (high-, medium- and low-speed), up to the highest power ranges to meet the needs of most industrial and marine markets worldwide.

More than 20 color photographs fill the Fincantieri Cantieri Navali Italiani brochure, showing the facilities, products and technology of the Diesel Engine Division. One color photograph is a picturesque aerial view of the Trieste facility.

The Diesel Engines Division performs research, development and design to large-scale production, marketing and after-sales service for gas and oil engines for the marine, industrial and rail traction industries. As part of its after-sales service to its customers, the Division offers not only the usual guarantees but also long-term maintenance contracts covering labor and spares.

For a free copy of this informative brochure on the Diesel Engines Division of Fincantieri Cantieri Navali Italiani,

Circle 27 on Reader Service Card

## T.A.S.T. To Represent Dan-Vaerft A/S In U.S. And Canadian Markets

Dan-Vaerft A/S, which consists of the shipyards Aalborg Vaerft A/S, Frederikshavn Vaerft A/S, and Helsingoer Reparations Vaerft, S/S, has made an agreement with T.A.S.T. Corporation of New York for T.A.S.T. to be their representative

in the American and Canadian markets, effective this fall.

In order to strengthen the competition, the three yards, all owned by the Lauritzen Group, have been consolidated. However, the powers and specialty of the individual yard will be maintained.

At the same time, it was decided to intensify the overseas sales work, which will be represented by **Alfred E. Stanford**, president of T.A.S.T. Corporation in the U.S.

and Canada. Mr. **Stanford** offers 30 years of experience in the marine field and has operated both as a technical consultant on shipbuilding projects for American owners and as a representative of shipyards throughout the world.

For complete information on the facilities and capabilities of Dan-Vaerft A/S,

Circle 35 on Reader Service Card

# THE BEST GOT BETTER

Bird-Johnson Company, a leading supplier of controllable pitch propellers for over thirty years, has great news—every vessel owner can benefit from our propulsion experience. We are now providing the marine industry with a complete range of propellers, controllable and fixed pitch. With the acquisition of facilities in Seattle, Washington and Pascagoula, Mississippi, we design, manufacture, service and repair propellers of any size and any horsepower.

**Seattle Operations · RDH Propeller Division** is one of the finest CP and FP propeller repair and reconditioning facilities in the country as well as a major distributor of fixed pitch propellers. Our technicians are fully qualified to meet ABS, U.S. Navy, U.S. Coast Guard and Lloyd's welding, repair and quality criteria.

**Seattle Operations · Coolidge Division** supplies the marine

industry with services in design, engineering, patterning, casting, machining and repair of fixed pitch propellers and related propulsion equipment. Our production experience and extensive research have resulted in a world renowned reputation for stainless steel and other alloy propeller manufacturing.

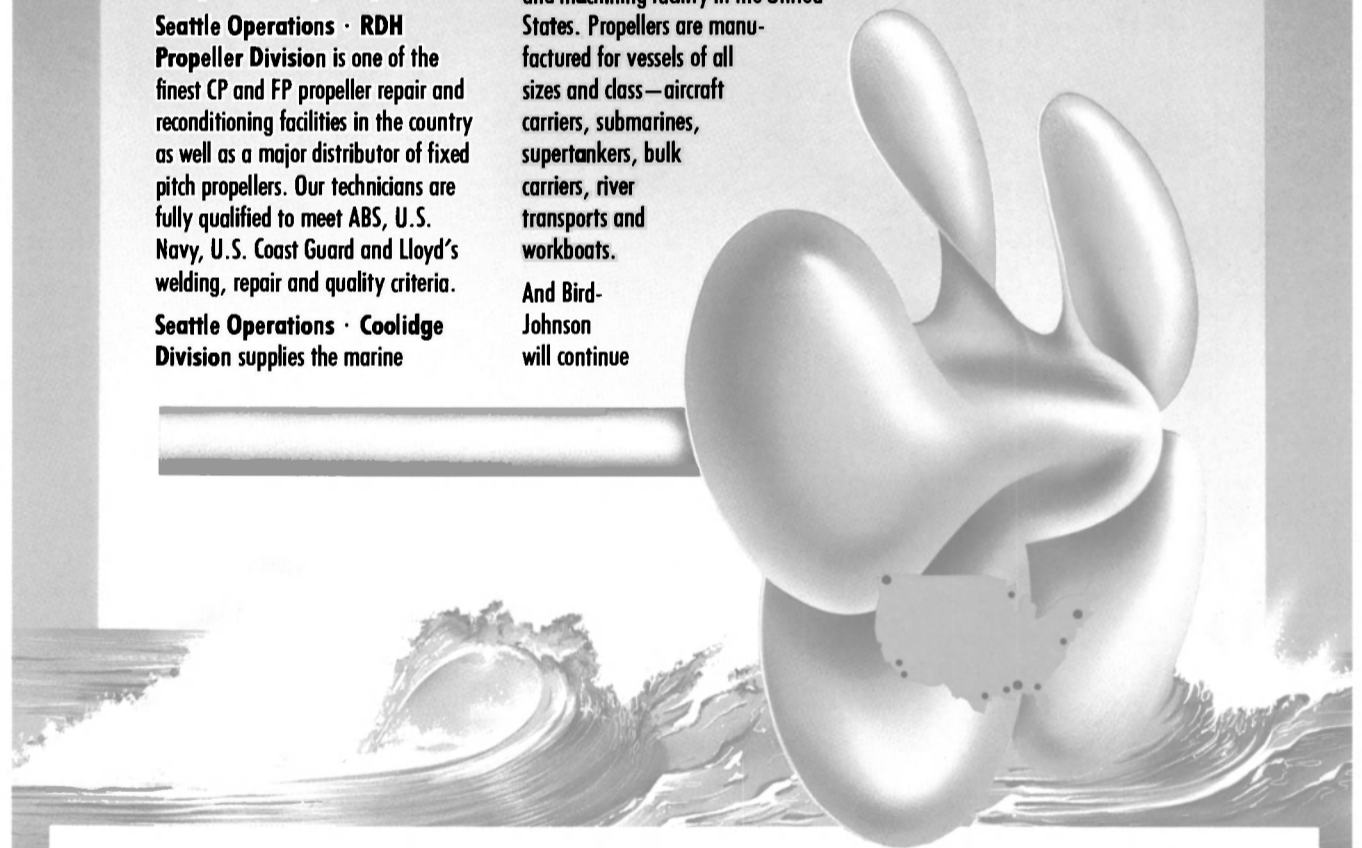
**Pascagoula Operations** is the most modern, fully equipped bronze and stainless steel propeller foundry and machining facility in the United States. Propellers are manufactured for vessels of all sizes and class—aircraft carriers, submarines, supertankers, bulk carriers, river transports and workboats.

And Bird-Johnson will continue

to maintain its Atlantic, Pacific, Gulf Coast and Great Lakes service support team to provide quick response to all parts and service requests from customers worldwide.

We're still headquartered in Walpole, Massachusetts, but now we can work for you in more ways—from every U.S. coast. The best really did get better.

For further details contact Gary W. Dayton, Director Marine Marketing and Services, 617/668-9610.



## BIRD-JOHNSON COMPANY



A subsidiary of A. Johnson & Co., Inc.

110 Norfolk Street • Walpole • MA 02081 • 617/668-9610 • Telex 6817294

- SEATTLE OPERATIONS · RDH PROPELLER DIVISION • 4451 14th Avenue N.W. • Seattle • WA 98107 • Toll free In WA: 1-800/422-5170 • Outside WA: 1-800-426-6526
- SEATTLE OPERATIONS · COOLIDGE DIVISION • 1608 Fairview Avenue East • Seattle • WA 98102 • 206/325-5100 • Telex 320315 COOLIDGE SEA
- PASCAGOULA OPERATIONS • 3719 Industrial Road • Pascagoula • MS 39567 • 601/762-0728 • Telex 589938 COOLIDGE PULA

Circle 140 on Reader Service Card

## Ashland's New Towboats Being Built By Quality Shipyards To Be Powered By Caterpillar Engines From Wayne

Each of the three new twin-screw towboats being built by Quality Shipyards in Houma, La., for the Ashland Petroleum Company will be powered by two Caterpillar 3606 engines delivering a total of 4,200 hp per vessel.

"This is the first installation of Caterpillar's 3606 engines utilized in new inland waterways construction," said **Jerry Mueller**, who is in charge of the engine division at Louisville-based Wayne Supply Company, Caterpillar dealer in Kentucky and southern Indiana. "It represents a real milestone for Ashland, Quality Shipyards, Wayne, and for Caterpillar, but more importantly it signals what we hope is a turning point for inland river transportation."

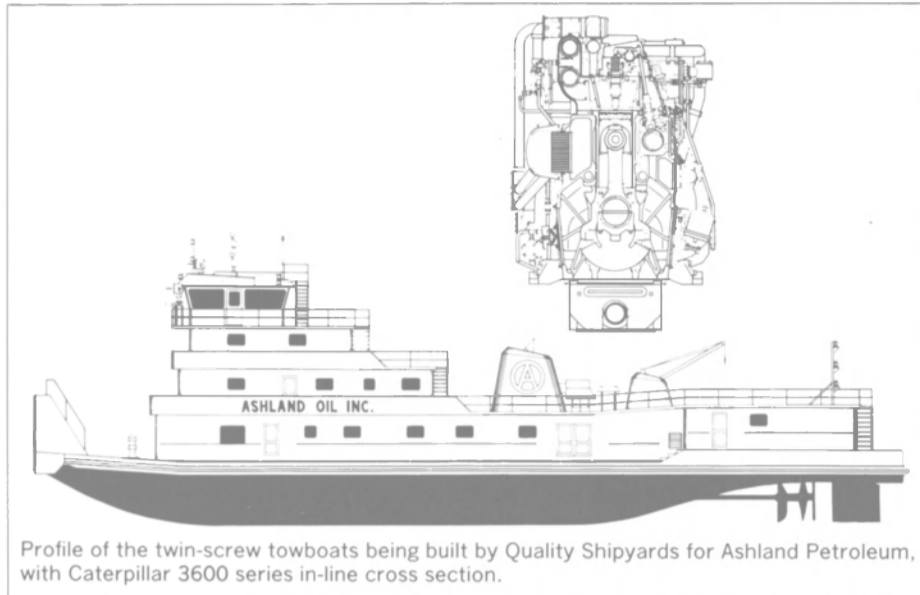
"The CAT 3600 series is the only totally new medium-speed diesel engine in the 2,000-6,000 class hp," said **Pete Gibson**, Wayne's ma-

rine specialist. "These engines are among the most fuel efficient and durable in their power and speed class, 720-1,000 rpm."

Delivery of the first Ashland boat is expected in April 1987, followed by the other two by the end of that year. The vessels will replace three veterans of the Ashland fleet. The new vessels will measure 150 feet by 45 feet by 11 feet. Built on a St. Louis Ship design with three decks and pilothouse, each vessel will also include guest quarters.

Wayne will also supply two CAT 3306-powered 155-kw generator packages and two Falk MR2440 reduction gears for each vessel.

"The boats will be classed by ABS for inland river service and will operate primarily on the Ohio and the Mississippi Rivers, pushing Ashland tows," said **John W. Joeckel**, manager of fleet operations for Ashland Petroleum, one of



Profile of the twin-screw towboats being built by Quality Shipyards for Ashland Petroleum, with Caterpillar 3600 series in-line cross section.

Kentucky's largest employers. Ashland also operates Great Lakes and oceangoing fleets.

Quality Shipyards, Inc. has worked with Caterpillar engines in the past, repowering the Mid-South Towing Company M/V Julia Woods with three Caterpillar 3608 engines earlier this year.

Wayne has ordered the new en-

gines from Caterpillar's new engine plant at Lafayette, Ind. They will be serviced by Wayne's parts and service facilities on the Ohio River at Paducah, Evansville, Louisville and Ashland.

For further information and free literature on Quality Shipyards,

Circle 11 on Reader Service Card

For free literature and more information on Caterpillar engines,

Circle 12 on Reader Service Card

## New Technology for High Performance Compact Heat Exchangers

### SPHERE MATRIX®

**SPHERE MATRIX offers**

- Lower Capital Costs
- Lower Pump Horsepower
- Less Fouling
- Less Vibration
- GREATER ECONOMY

The heart of the SPHERE MATRIX Technology consists of nesting the tubes in a regular matrix of solid spheres around the outside and utilizes fluted spheres, properly spaced, on the inside. The spheres interrupt the boundary layer growth and thereby enhance the heat transfer performance.

Fluted sphere inserts or solid sphere bundles can be used separately depending on the needs of the application.

Call or send for complete information on SPHERE MATRIX or assistance in applying this new technology on your next heat transfer application.

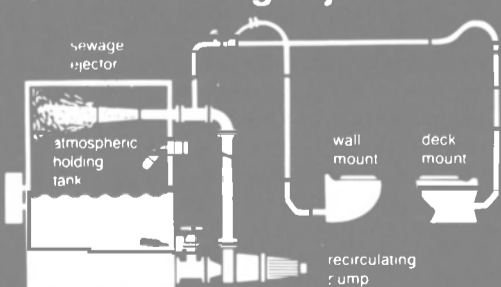
SPHERE MATRIX devices are protected by U.S. and foreign patents and patent applications.

Vapor Corporation - Heat Exchange Products  
6420 West Howard Street, Chicago, Illinois 60648 Telephone 312/631-9200



Circle 345 on Reader Service Card

## The E-VAC sewage ejector now makes a holding system the sensible choice.



- low volume fresh water flush toilet (2 pints/flush)... 10 man crew produces 15 gals. of sewage per day
- small diameter piping... 1-1/2" and 2"
- piping layout flexibility... with vertical lift
- reduced holding tank size... 80% smaller
- system components can be adapted to utilize ship's hull tanks where space is limited
- toilet vents eliminated

1260 Turret Drive  
Rockford, IL 61111 U.S.A.  
815/654-8300. Telex 257-415  
Toll Free: 800-435-6951  
(except IL, HI, AK)

7036-30 Street S.E.  
Calgary, Alberta, T2C 1N9 Canada  
403/279-2669. Telex 03-821885  
Toll Free: 800-661-3161

**ENVIROVAC INC.**

Circle 134 on Reader Service Card

## Navy Issues Contract To WABCO For Propulsion Controls For T-AO Oilers

WABCO Fluid Power division has been awarded a contract to provide electropneumatic propulsion control systems for the Navy's new T-AO-187 Class Fleet Oilers. These vessels will have the Colt Industries' newly developed diesel engines, the largest engine manufactured in the U.S. Two of these heavy duty 10-cylinder marine diesel engines will provide 32,000 hp to drive the Navy's new fleet oiler vessels which will fuel and supply the fleet at sea. Initial construction of these ships is underway at Avondale Shipyard (New Orleans, La.) and Pennsylvania Shipbuilding Company (Chester, Pa.). A total of nine ships out of a planned fleet of 20 are under construction at these two shipyards.

WABCO, a division of American Standard Inc., will provide three shipsets of electro/pneumatic engine propulsion controls to Penn Ship and two sets to Avondale for five of these ships.

Each shipset of WABCO controls consists of: two engine control panels; two clutch control panels; two engine slow turning panels; and two engine turbo water-wash panels.

This equipment will be manufactured in Lexington, Ky., under contract from Colt Industries and delivered directly to the respective shipyards.

For free literature on the marine control systems offered by WABCO,

Circle 38 on Reader Service Card

## W.J. Holcombe Elected Chairman And CEO Of Transamerica Delaval



William Holcombe

William J. Holcombe has been elected chairman and chief executive officer of Transamerica Delaval Inc., the manufacturing subsidiary of Transamerica Corporation. Announcement of Mr. Holcombe's election was made by Transamerica Corporation chairman and chief executive officer James R. Harvey.

As chief executive officer, Mr. Holcombe succeeds Truman W. Netherton, who continues as Transamerica Delaval's president.

Mr. Holcombe was president and chief executive officer of Transamerica Delaval—then Delaval Turbine Inc.—from 1965 to 1972. He joined the company in 1960. From 1972 to 1975 he was group vice president, manufacturing, of Transamerica Corporation. Most recently, he has been chairman of Teton Inc., a manufacturing company headquartered in Santa Fe Springs, Calif.

Transamerica Corporation has announced plans to divest Transamerica Delaval Inc. as part of a long-term strategic decision to focus on its insurance and financial services businesses. The divestiture of the manufacturing company will be accomplished either through a sale to a third party or through a spin-off to Transamerica Corporation's shareholders.

Headquartered in Lawrenceville, N.J., Transamerica Delaval Inc. is an integrated manufacturing company focusing on instruments and controls, engineered products and services for industrial and military customers. The company has 14 divisions operating in North America and Europe. In 1985, it reported income of \$8 million on revenues of \$392.9 million.

## Mitsubishi To Construct Two 68,000-Dwt Tankers For Chevron Shipping

Japan's Mitsubishi Heavy Industries and Chevron Shipping Co. have signed a contract under which the yard will build two new 68,000-dwt tankers for the Chevron Corporation subsidiary.

The new vessels will replace up to five older ships in use in lightering service and will bring about savings in turnaround time and crew sizes, according to Doug Wolcott, president of Chevron Shipping.

Mitsubishi's Nagasaki yard will build the new vessels, which are scheduled for delivery in 1988.

## McDermott Gets Contracts Valued At \$15 Million To Install Offshore Structures

McDermott International, Inc. has signed contracts worth a total of approximately \$15 million (11 million pounds sterling) with Conoco (U.K.) Limited, to install offshore facilities for the Southern Basin Gas Development in the British sector of the North Sea in 1987 and 1988.

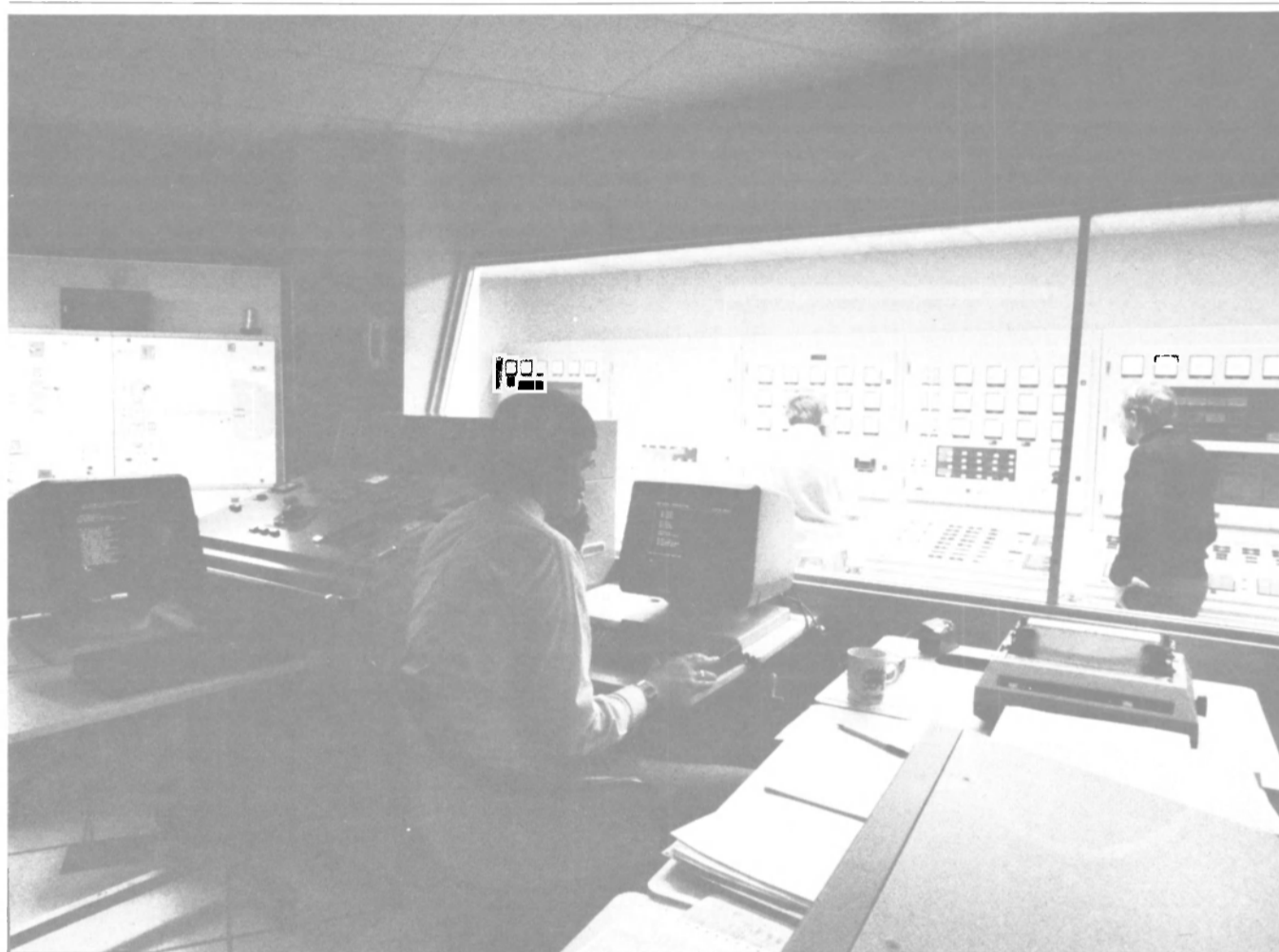
The contracts call for 1987 instal-

lation of the production, accommodations, and wellhead jackets, as well as link frames on the production and accommodations platforms and decks for the three wellhead jackets. In March 1988, the production deck, accommodations deck, and the Vulcan 2 jacket and production deck will be installed.

The 1988 work will be performed by McDermott's Derrick Barge 102, the world's largest semisubmersible derrick barge. During this operation, the DB102 will perform the

heaviest single crane installation when it installs a 4,000-ton (metric) production deck. This huge crane can perform tandem lifts of up to 12,000 metric tons.

Installation engineering work will be performed by McDermott Engineering London, a division of McDermott International. McDermott Europe Marine Services, Ltd., also based in the U.K. will provide management services for the project.

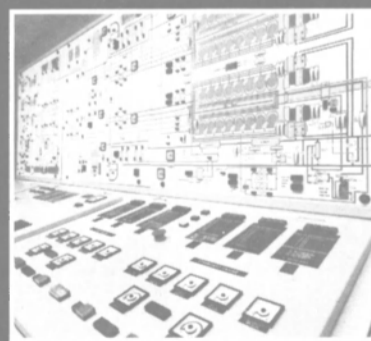


## FROM DEEP DRAFT TO OFF-SHORE TO INLAND WATERS, ENGINEER ROOM TRAINING POINTS ONE DIRECTION: TO THE MTRC.

The MTRC's medium-speed diesel plant, steam plant and electrical and cargo/ballast simulators are the most sophisticated in the world. Through the utilization of the newly-developed Computer-Aided Marine Engineering Training System (CAMETS), you can further your skills and knowledge at an accelerated rate. Here you receive personalized 2 or 3 day courses — or more indepth instruction depending on individual needs. Under the direction of professionals who know their

business and yours. On simulators that are the first choice of the international maritime community.

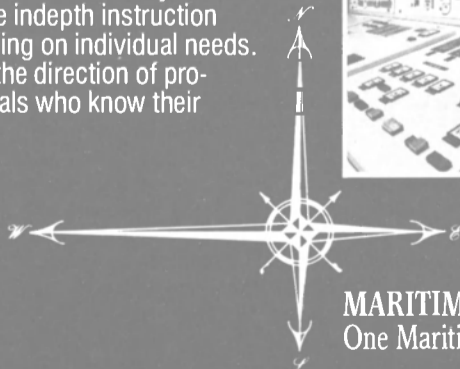
The following courses have been specifically designed to assist ma-



rine engineers in maximizing plant operation and efficiency:

- Diesel energy management
- Casualty control and emergency procedures
- Effective monitoring of unattended machinery spaces
- Diesel plant operation for steam engineers
- Operation of automatic load-sharing electrical generator systems

For training details and a course schedule, please contact our Operations Manager at (419) 255-3945.



MARITIME TRAINING AND RESEARCH CENTER.  
One Maritime Plaza, Toledo, OH 43604

Circle 199 on Reader Service Card

## Sermatech International Offers 12-Page Brochure On Coatings And Repairs

Sermatech International Inc. of Limerick, Pa., is offering a new free 12-page color brochure that describes corrosion, erosion, wear, sulfidation, and hot corrosion-resistant coatings and repair/restoration technologies. The advanced tech-

nology materials and services are used extensively in industry, including aerospace, petroleum, power, chemical, marine, etc.

The three headings above the main chapters in the publication—"Service," "Materials," and "Technology," are derived from the fact that the Sermatech International name is comprised of a combination of SERvice, MATerials and TECHnology provided on an international basis.

The "Service" chapter points out that Sermatech Technical Services (STS) is a leading supplier of the sophisticated technical services listed therein. The "Materials" section describes various coatings such as SermeTel® and Gator-Card®, and the final chapter is devoted to "Technology."

Inspector services include: GATOR-CARD Coating Services; Conventional Plasma Spraying; Flame Spraying; Cylindrical and Flat

Grinding; Diamond Grinding; Lapping; Honing; SermeTel Coating Services; Non-SermeTel Coating Services; On-site Coating Services; Stacked Rotor Coating Services; Mechanical and Chemical Cleaning; Computerized Airfoil Recontouring; Mechanical Surface Finishing; Shot Peening; Glass Bead Peening; Machining (Turning, Milling, Drilling); Welding (TIG, Electron Beam); Heat Treatment (Vacuum and Atmospheric Furnaces, Brazing, Hot Forming; Creep Forming); and Engineering Support Services.

The explanatory text of the sections is well illustrated with a generous supply of excellent color photos.

For more information and a free copy of the 12-page color brochure from Sermatech International,

Circle 74 on Reader Service Card

## Japanese-Built Vessel Delivered To Norway's Star Shipping A/S

Star Shipping (NY) Inc. of Stamford, Conn., U.S. East Coast representative for Star Shipping A/S of Norway, has announced that the Norwegian-based company has taken delivery of the Star Geiranger, the third of four new vessels being built for the company by Japan's Kawasaki Heavy Industries.

The Star Geiranger is a 42,300-deadweight-ton open-hatch type vessel designed to carry forest products, containers and bulk cargo.

## McAllister Bros. Appoints Martyn Reynolds VP-Sales



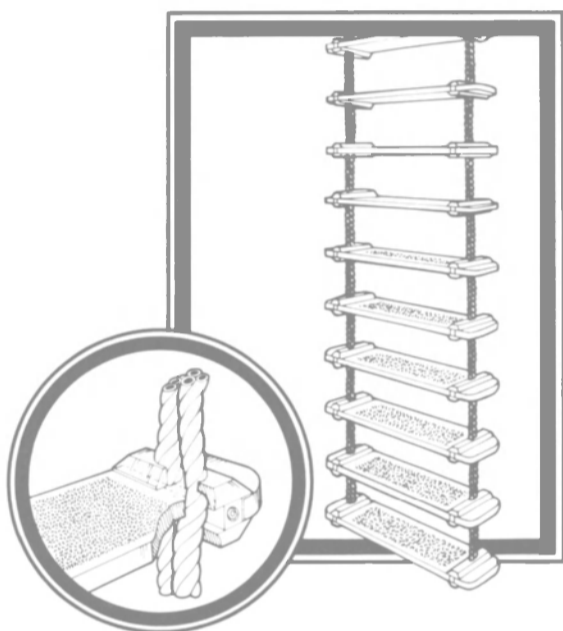
Martyn Reynolds

Brian McAllister, president of McAllister Brothers Inc., has announced the appointment of Capt. Martyn L.C. Reynolds as vice president-sales.

Captain Reynolds' career spans more than 25 years in the shipping industry. Formerly of Wales, U.K., he started his career with Ben Lines of Edinburgh, Scotland, spending 13 years at sea, working his way to ship's master. In 1974, Captain Reynolds joined Barber Steamship Lines in New York as operations manager. Most recently he has served as assistant vice president in charge of marketing and conference matters for CGM French Line.

Captain Reynolds, who will be heading the New York sales division, will primarily be responsible for ship docking sales in the ports McAllister operates from New York to Jacksonville.

## A. L. Don introduces the 'Next Step' in debarkation ladders .."ERIK II"



"Erik II" is a **totally synthetic** embarkation debarkation ladder. This new and unique ladder is designed with steps you can replace quickly and easily, **right on board the vessel.**

A specially designed mechanical clamp holds each step in place. So there is **no need to unstring** the ladder and there are **no special tools required.**

"Erik II" has successfully undergone drop tests as high as 95' (28.96 meters). It is **approved by the U.S.C.G.** and meets or exceeds **SOLAS and IMO standards.**

"Erik II" is the only debarkation ladder in the world with steps that can be replaced in the exact same fashion as the original construction... It is **easy to fold, easy to store.**

The steps are international orange for safety and are made from a Dupont® high impact strength polymer. Each step will easily withstand loads of 700 lbs. with **less than 1/4" of deflection.** The ropes are polyprop-dacron with a white outer jacket and orange inner safety core.

"Erik II" is patented, available worldwide, and the only ladder of its kind. The unique design of "Erik II" makes it available **at prices far lower** than those of competitors.

A. L. Don also manufactures and markets a full line of Jacobs ladders, pilot ladders, oars, fids, mallets, hatch boards, boat poles and other marine wood products.

Take the 'next step' and call for free literature, technical drawings and quotes.

### Headquarters:

## A. L. DON COMPANY

Division of Steelstran Industries, Incorporated  
Foot of Dock Street, Matawan, NJ 07747  
(201) 566-5040 • Telex: 139374

### A. L. DON, WEST

Roberton & Schwartz Sales Co., Inc.  
722 Folger Ave., Berkeley, California 94710  
(415) 845-9336 • Telex: 176148

### A.L. DON, SOUTHEAST Indusco

429 Tallyrand Ave., Jacksonville, FL 32201  
(904) 355-3423

Circle 26C on Reader Service Card

**YOU  
CAN'T PREDICT  
ANYTHING ABOUT  
RUDDER  
BEARINGS.  
UNLESS  
THEY'RE  
THORDON.**

Impact, abrasives and friction can all be working away at your rudder bearings without you knowing it. Until it's too late.

That's why it's wise to assume that your rudder bearings will always be getting rough treatment. Then you can prepare for it. With Thordon installed.

Whether it's at the pintle, the stock or the steering gear, Thordon delivers better performance than anything else you're using now.

Consider shock-resistance. A sudden impact that would crack a phenolic or deform a bronze bearing has no effect on Thordon. It absorbs the shock and bounces back.

Consider steering torque. It's less with Thordon, thanks to its lower co-efficient of friction.

Consider service. Thordon raw stock is warehoused in 50 countries around the world. So wherever there's a Thordon distributor and a lathe, there's a Thordon rudder bearing.

Cut the odds on premature rudder bearing failure. Get all the facts on Thordon, and start betting on a sure thing.

# Thordon

**IT WORKS HARD. YOU REST EASY.**

WRITE FOR COMPLETE PERFORMANCE DETAILS TO:



**THOMSON  
GORDON  
LIMITED**

3225 Mainway, Burlington  
Ontario, Canada L7M 1A6  
Telephone (416) 335-1440  
Telex Number  
061-8705

Circle 236 on Reader Service Card



*Standard built-in adjustable stroke stops from 80° to 100° of travel.*

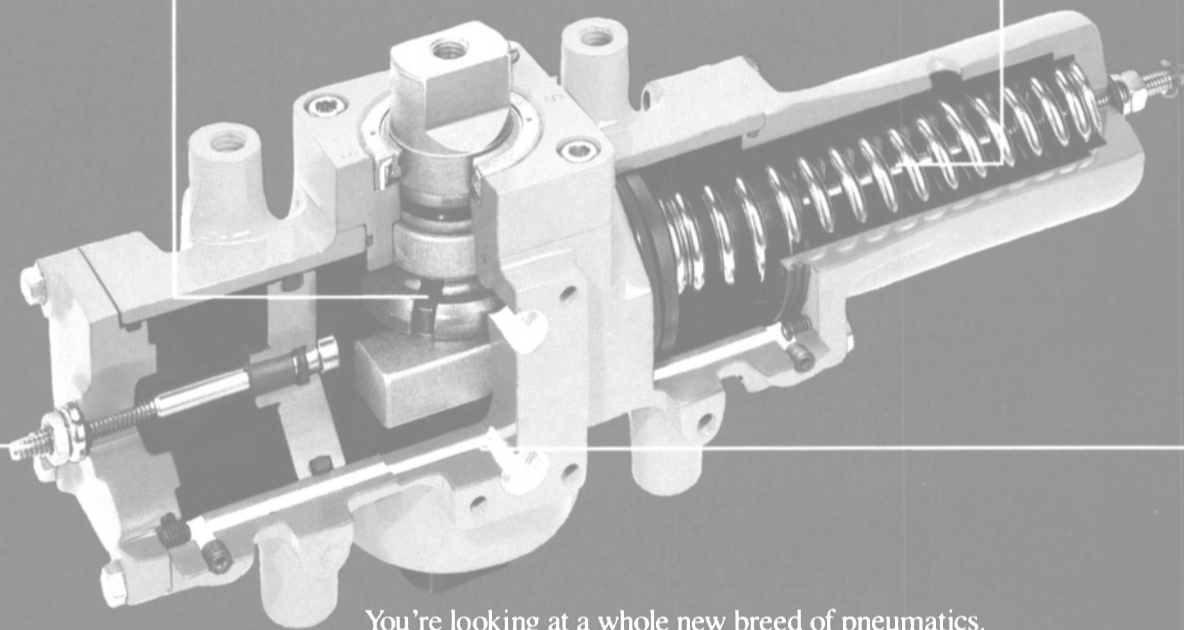
*Double Scotch Yoke mechanism for superior balance and a more symmetrical configuration.*

*Double-acting and spring return models with torque outputs from 70-250,000 inch-lbs on supply pressures from 40 to 150 P.S.I.*

*All cast iron construction for extra durability in harsh or adverse environments.*

*Introducing  
The New HR Series  
Pneumatic Actuators  
From Limitorque.*

## A Turn For The Better.



You're looking at a whole new breed of pneumatics. Double-acting and spring returns with double, scotch yoke mechanisms mean an actuator that delivers superior torque characteristics with total valve control reliability (a feature sometimes a little difficult to pin down with rack and pinion or single yoke construction). And because harsh environments take their toll all too quickly, ours is made of all cast iron to match the durability of our big "muscle" actuators. But for all its impressive features, we know that price and availability are at the heart of the matter. So you can take heart in knowing the new HR Series is very competitively priced and available in stock for immediate delivery. Add a full range of optional controls to meet your most exacting specifications, and you've got a pneumatic you can specify and forget.

Because we not only back you with the industry's toughest new line of pneumatics, we'll support you every step of the way. It's what you'd expect from Limitorque. And we wouldn't deliver less. Our free brochure will tell you more. Just write or call.

# Limitorque

Limitorque Corporation

5114 Woodall Road

Lynchburg

Virginia 24506

(804) 528-4400

Telex 82-9448

## Union Bay Marine And Thomas Dyer Form New Company



Thomas R. Dyer

Union Bay Marine Corporation and **Thomas R. Dyer** have announced the formation of a new company, Union Bay Shipbuilding Corporation. The new company will be owned jointly by Union Bay Marine and Mr. **Dyer**.

Mr. **Dyer** has been appointed president, and will operate the shipyard located at 801 N.W. 42nd Street on the Lake Washington Ship Canal in Seattle. The yard was formerly operated by Union Bay Marine Corporation, also under the name Union Bay Shipbuilding Corporation.

Mr. **Dyer** stated that he is very enthusiastic about Union Bay Shipbuilding. "It's a fine facility, with a 450-ton marine railway, large enough for a 125-footer, and a first-class machine shop."

The new corporation's first major job will be the conversion of the 106-foot crab boat *Oceanus* to a trawler.

## Aeroquip Introduces New High-Temperature Hose —Literature Available

Aeroquip Corporation of Jackson, Mich., has introduced a new high-temperature hose, FC498 AQP SAE100R6, that is specifically designed for low-pressure valve and cylinder return line applications.

Made from Aeroquip's patented AQP elastomer, a scientifically superior elastomeric material, FC498 AQP hose is compatible with water, air, gasoline, fuel, petroleum-based and fire-resistant hydraulic fluids and lubricating oils. Capable of withstanding temperatures ranging from  $-40^{\circ}$  F to  $+300^{\circ}$  F ( $250^{\circ}$  F with air), Aeroquip's new FC498 hose has a maximum operating pressure of 400 psi for hose in sizes  $-4$  through  $-8$ , and 350 psi for sizes  $-10$  through  $-12$ . Other advantages include its resistance to oxidation, ozone, and the effects of shelf aging.

The new hose style utilizes crimped fittings in a wide range of end configurations, including ORS connectors.

For a free copy of Aeroquip Bulletin IEB-310, which contains complete information,

Circle 81 on Reader Service Card

## Meyer Werft Constructing Roofed-Over Building Dock For Specialized Vessels

Meyer Werft of Papenburg, West Germany, recently released an artist's rendering of its new roofed-over building dock. With a length of about 870 feet and width of more than 328 feet, this hall will be one of the world's largest roofed building

docks. The 131-foot-wide dock within the 197-foot-high hall will allow ships similar in size to the recently delivered *Homeric* and even larger units to be constructed entirely under roof.

The new facility will enable Meyer Werft, which has always concentrated on building of specialized vessels, to construct cruise ships, passenger vessels, gas tankers, etc. independently of the weather, with

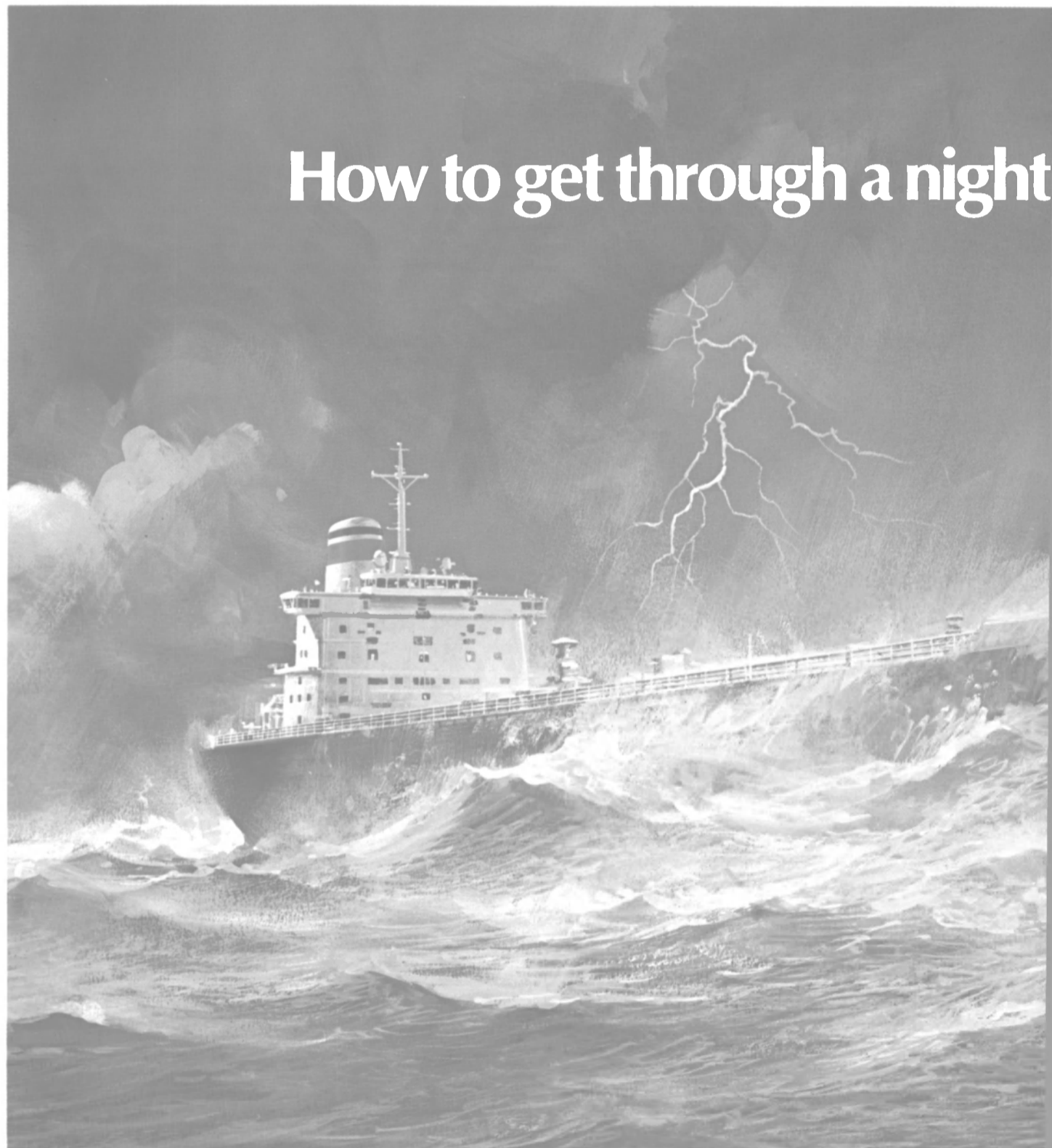
the effect of further improving quality and productivity.

The liner *Crown Odyssey* for Royal Cruise Line of Piraeus, Greece, will be the first ship to be built in the new dock; delivery is scheduled for mid-1988.

For further information and free literature on Meyer Werft's facilities and capabilities,

Circle 25 on Reader Service Card

# How to get through a night



## With BP Lubricants aboard, your ship's crew, and management too, can get a good night's rest.

BP's professional team is there to navigate you through the stormy passages of lubricant supply and equipment reliability. Without the best technical service *before* leaving port, your next voyage could be more than just stormy. However, BP Marine International is on all three U.S. coasts. So put your worries to rest.

BP Marine Lubricants has a long history of providing a complete lubrication service with matching technical expertise worldwide. We have consistently offered the highest quality oils and greases for cruise ships, tankers, bulkers, reefers and

container ships. Services essential to dependable ocean travel.

## BP's "Early Warning System"

Its development has resulted in the latest in state-of-the-art technical service, the BP Oil Test Kit. It's a comprehensive onboard portable lab, designed specifically for analyzing lubricating oils and pinpointing problem areas. Developed by research chemists and practical seagoing engineers, it's an easy-to-handle system which can locate potential problems, reduce the risk of engine failure and monitor lubricant performance instantly. It works in conjunction with BP USA's comprehensive fully computerized oil analysis system.

**M.E.K. Equipment Offers  
New Crane Bumpers  
—Literature Available**

M.E.K. Equipment, Inc. of Newport News, Va., has recently announced the availability of their new crane bumpers.

The crane bumpers are made of foamed polyurethane, a process that allows much lower deceleration and

therefore better protection of the equipment being stopped. They are offered in energy absorption capacities from 300 ft.-lbs to 700,000 ft.-lbs, and are suitable for even the largest cranes.

The bumpers can be used to replace damaged hydraulic or pneumatic equipment and are in many cases less costly than repairing old equipment. More important, in most cases the bumpers allow closer

end-approach, up to 3 feet per crane, when several cranes are working simultaneously unloading a vessel.

M.E.K. Equipment offers free engineering service to meet O.S.H.A., C.M.A.A., and A.I.S.E. 69 specifications.

For further information and a free brochure,

Circle 44 on Reader Service Card

**Soper Named President &  
COO Of American Bureau**

Richard T. Soper has been elected president and chief operating officer of the American Bureau of Shipping, Paramus, N.J. Prior to joining ABS on November 1 this year, he was executive vice president of Sea-Land Service, Inc. in charge of the worldwide operations of all 66 owned and chartered vessels of the Sea-Land fleet.

**TDI Hand-Held Digital  
Tachometer Easy To Read  
—Literature Available**

An easy-to-use, easy-to-read digital tachometer is available from TDI Catalog Sales of Plainview, Conn. With a measurement range from 50 to 20,000 rpm, this hand-held unit is simply aimed and the trigger pulled for a clear digit display. It can be supplied with a red LED display or a black LCD display; numerals are 0.4-inch high.

Powered by four AA batteries, the unit reads through mesh safety guards, wire screens, and transparent windows, from up to three feet from a reflective target and 45 degrees off perpendicular. The display indicates proper lock on target. For "no-hands" readings, the tachometer can be mounted on a tripod.

For further information and free literature on the TDI tachometer,

Circle 28 on Reader Service Card

**Keyed Quick-Connects  
Assure Safety In  
Multiple Line Systems  
—Free Literature Available**

The full line of Swagelok "QT" Series Quick-Connects, in sizes from 1/8" to 3/4", is now available with "keyed" bodies and stems from Crawford Fitting Company, Solon, Ohio.

A positive mechanical lockout system allows "keyed" bodies to couple only with matching "keyed" stems, preventing accidental intermixing of corrosive and other hazardous fluids. Another important safety feature is a safety release button which prevents accidental uncoupling.

Four different color coded "keys" are available. Choice of end connections includes NPT, 37° AN flare, and Swagelok Tube Fittings.

All 316 stainless steel construction, with protected TFE seals, provides high chemical resistance along with the ability to withstand rough handling. The design also features high flow capacity, with low air inclusion when coupling and low spillage when uncoupling.

Service ratings are vacuum to 6,000 psi (41,300 kPa) in the coupled position.

For free literature containing full information,

Circle 78 on Reader Service Card

← Circle 110 on Reader Service Card

without tossing and turning.



555 US Route 1, South Iselin, NJ 08830  
(201) 750-8828 (800) 524-1567  
Telex: 176082

1125 Fourth Street  
Gretna, LA 70053  
(504) 368-2560 Telex: 784029

363 N. Gaffey Street  
San Pedro, CA 90731  
(213) 548-6496  
Telex: 691549

You've Got Us On All Three Coasts

Our reputation as a worldwide marketer of marine lubricants extends to all three coasts here in the states. Talk to Al Keller on the East Coast at (201) 750-8828; Al LeBoeuf on the Gulf Coast at (504) 368-2560; Fred Groves on the West Coast at (213) 548-6496 or Brian Mennell, Manager, Marine Lubricants Engineering, at (800) 524-1567.

Wherever you go on earth, you can get there with BP Marine International.

**BP North America Petroleum, Inc.**  
The American arm of BP Marine International  
**You've got us where you want us.**

**U.K. Ministry Of Defence  
Selects MFV Incinerators  
For Royal Navy Frigates  
—Literature Available**

The U.K. Ministry of Defence has selected the MFV (Moss Fredrikstad Verft) marine incinerator, marketed in the United Kingdom by Marine Ventures Ltd., as the most suitable commercially available in-

cinerator for onboard installation on the Royal Navy's recently ordered Type 23 frigates.

The Ministry of Defence selected the MFV incinerator after thoroughly testing and comparing the various proprietary incinerators available to the marine industry. The MFV incinerator's unique "U"-shaped combustion chamber was said to have shown to result in more thorough incineration in the least amount of time.

Having been designed as a fail-safe unit specifically for use on ships and offshore rigs, the MOD tests confirmed the MFV design as having features that make it compatible with the shipboard environment and capable of disposing of the wastes normally generated on board naval ships.

The outside surface temperature of the incinerator is maintained at a safe and moderate temperature by air cooling and insulation, making it

possible to operate the incinerator continuously, if necessary.

The MFV incinerator is manufactured in Norway by Moss Fredrikstad Verft to comply with the rules of all major classification societies and the U.S. Coast Guard.

The MARPOL 73/78 IMO Convention dealing with ship-generated refuse and solid wastes—which is expected to be ratified in the near future—and disposal of accumulated oil slops are making incinerators a standard requirement on many new-buildings in shipyards throughout the world.

For free literature containing additional information on the MFV incinerator,

Circle 24 on Reader Service Card

**J.E. Steigerwald Co.  
Appoints Gebhardt VP**

The J.E. Steigerwald Co., Inc. recently announced the appointment of **Richard S. Gebhardt** to executive vice president. Mr. Gebhardt will take over operations management for the five regional offices situated on the three coasts of the United States.

The J.E. Steigerwald Co. installs deck covering, insulation, and reefer boxes in most of the major shipyards across the country and in Alaska and Puerto Rico.

For further information and a free eight-page color brochure,

Circle 43 on Reader Service Card

**Parametrics Offers Two  
New Free Brochures On  
AC Motor Speed Control**

Parametrics, a unit of ASEA, Orange, Conn., is offering free two new recently published color brochures of ParaJust Gx, a third generation AC motor speed control.

Now available from 3 through 30 hp, ParaJust Gx controls are, according to the manufacturer, the most versatile and reliable controls Parametrics has ever offered.

Among the unique features of this product, which makes variable speed motors out of normal 3-phase constant speed motors, are: input power 50/60 Hz any voltage from 208-460V without reservation; oil-tight enclosure with operator's controls in front cover or they may be covered for remote control; ampere rated for the high current drawn by 380V kilowatt rated motors or 1.15 service factor 460V motors; built-in display of output frequency, volts or amps converts to a fault indicator; completely enclosed in an oiltight housing.

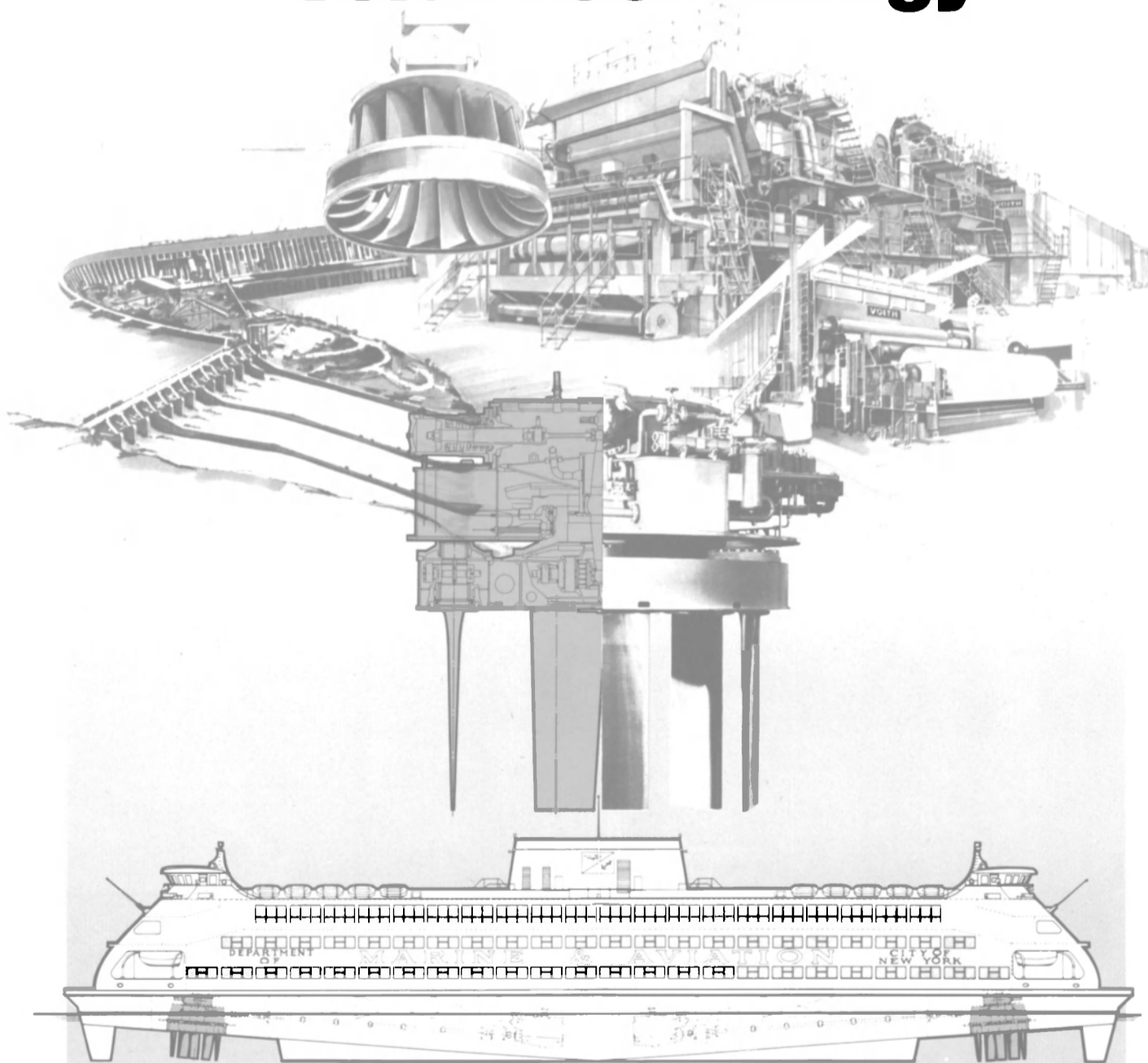
ParaJust Gx controls are stocked worldwide by more than 200 distributors and parts are carried by about 40 parts depots.

Parametrics also offers an Application Manual on these controls, aiding in their selection, wiring and interfacing.

For further information and free copies of the new brochures,

Circle 90 on Reader Service Card

# Voith-Schneider Propeller = Voith Technology



World records in paper production on  
● Voith Paper Machines

The world's largest hydroelectric power station with  
● Voith Turbines

Highest safety, manoeuvrability and precision, e.g. for ferries by  
● Voith-Schneider Propellers

These unique three, among other significant products, have one in common:

**Voith Technology!**

USA: Voith-Schneider America Inc., (Eli Shaprut)  
121 Susquehanna, Great Neck, N.Y. 11021  
Telephone: 516-466 57 55, Telex 510-221 1864

Canada: Diamond Canapower Ltd.  
1122 Pioneer Road, Burlington, Ontario L7R 4A7  
Telephone: 416-335 0321, Telex 061-8286

# VOITH

J.M. Voith GmbH  
Marine Engineering Division  
Postfach 1940, D-7920 Heidenheim  
Tel. (07321) 37-0, Tx. 714 799-60 VH D

Circle 111 on Reader Service Card

*"To forget about mines and mine countermeasures would be to invite upon ourselves a future maritime defeat."*

—Admiral James D. Watkins, USN  
Chief, Naval Operations

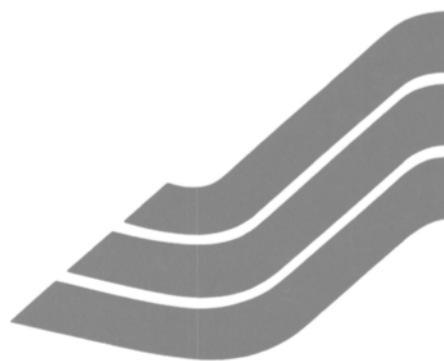


## HOW TO KEEP THE OTHER GUY FROM *MINING* YOUR BUSINESS.

The approach is twofold. Mount an effective mine-laying program in defense of home waters. Or impede an enemy's operations in his own home waters. As Avenger class shipbuilding partners with the U.S. Navy, we're proud to support renewed emphasis on mine warfare and countermeasures as a deterrent force. This focus couldn't come at a better time.

MCM vessels are an integral and vital part of the 600-ship Navy. Without minesweepers, our fleet could be bottled up in home ports. Of course, that's where the other guy would like to keep us. But Admiral Watkins spoke for all of us when he declared:

*"We must never again let mines and mine countermeasures become weapons that wait for our attention."*



**Marinette Marine**

Marinette, Wisconsin 54143  
(715) 735-9341 / TWX 910-270-1388

# PROPULSION UPDATE

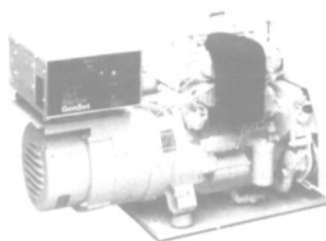
## Onan Expands Generator Line—Adds 12.5-KW And 30-KW Diesel Sets

—Brochure Available—

Expanding and improving its line of marine generator sets (gensets), Onan Corporation has introduced two new diesel models—the 12.5 MDL3 and the 30 MDL6. Both models are powered by Onan L Series diesel engines.

The 12.5 MDL3 fills a market void between 8-kw and 15-kw marine gensets. The 30 MDL6, Onan's largest L engine powered genset, is priced competitively with other 30-kw sets in the marketplace.

Both units feature an Onan brushless AC alternator—available in 50 or 60 hertz, three point vibration isolation mounting system, air



Onan's newly added genset models—the 12.5-kw (shown above) and the 30-kw—are powered by Onan L Series diesel engines.

intake silencer and integral heat exchanger with water cooled exhaust manifold. The 60 hertz 12.5 MDL3 also features a line circuit breaker.

These two gensets feature one-side service and maintenance access. Additional features include a vibration isolated, mounted control panel which can be adjusted for three different positions depending on the installation. Controls include start-run-stop switch, hour-meter, DC control circuit breaker, and a manual reset fault relay indicating engine shutdown for high engine temperature, high exhaust temperature and low oil pressure. Both gensets feature transformer voltage regulation.

The 12.5 MDL3 weighs 845 pounds and its dimensions are 43.5 inches length, 23.7 inches width and 26.3 inches height. The 30 MDL6 weighs 1,280 pounds and its dimen-

sions are 60 inches length, 23 inches width and 29.25 inches height.

The two new Onan sets feature a galley full of options including sound shields, gauge packages, solid state voltage regulators and over-speed shutdown switches as well as mufflers, shoreline transfer switches and batteries.

These marine gensets can be used to power a variety of luxury items including VCR's, microwave ovens, blenders, stereos, air conditioning or power hand tools for shoreside maintenance.

For a free brochure giving full details on Onan Corporation's marine generator line,

Circle 5 on Reader Service Card

## Latest Ingalls LHD Contract Has \$1.1-Billion Potential

Ingalls Shipbuilding division of Litton in Pascagoula, Miss., recently won a major competition to build three additional multipurpose amphibious assault ships of the Wasp

(LHD-1) Class. The lead ship of the class is currently under construction at the Ingalls yard under a contract awarded in 1984.

In September this year, Ingalls was awarded a \$402.5-million Navy contract to build the second ship of the class, LHD-2. That contract contains options for two more LHDs, one to be awarded in December 1987, the other in December 1988. These three ships have a potential contract value of \$1.1 billion for the Pascagoula shipyard.

"Winning this contract was vitally important to Ingalls and the economy of the Gulf Coast area," said Jerry St. Pe, president of Ingalls Shipbuilding and senior vice president of Litton. "It will provide the solid business base necessary for our shipyard to be successful in winning several additional shipbuilding contracts that collectively could result in future increased employment over the shipyard's current work force of 12,700.

"Beyond the LHD program, future employment will be influenced by Ingalls' continued success in the Navy's Aegis shipbuilding programs," Mr. St. Pe said. Ingalls is the lead shipyard for the Navy's new class of Aegis guided-missile cruisers, having been awarded contracts to build 13 of these ships (five have been delivered). Eight additional Aegis cruisers will be awarded over the next several years in competitive bidding. And later this year, Ingalls will be bidding to become the Navy's second-source shipbuilder of the new DDG-51 Aegis destroyers.

"Continued success with available new business opportunities could result in a 14,000-plus level work force by 1990," Mr. St. Pe said, "that could extend well into the 1990s."

The first ship of the LHD Class, the Wasp, is well into production, with delivery scheduled for early 1989. Under the recently awarded contract, LHD-2 will be delivered in early 1992, LHD-3 in late 1992, and LHD-4 in mid-1993.

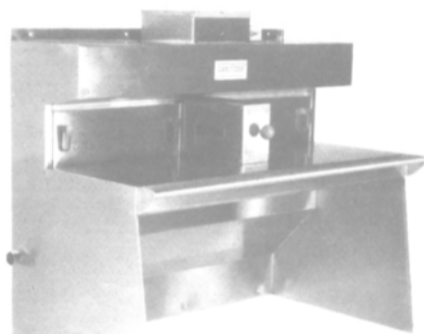
For free color literature describing the facilities and capabilities offered by Litton's Ingalls Shipbuilding division,

Circle 16 on Reader Service Card

# GREITZER

## SHIPBOARD GALLEY EXHAUST VENTILATION

### A NEW SOLUTION TO AN OLD PROBLEM



- NAVSEA approval
- Effective Grease Extraction
- Reliable Fail-Safe Damper Control
- Automatic Internal Cleaning
- Complete Line of Models For Any Application

Distributed By: Rudman & Scofield, Inc.  
812 Middle Ground Blvd.  
Newport News, Va. 23606  
(804) 873-0510

GREITZER, Inc. • 101 Riverdale Road • Riverdale, N.J. 07457 • 201-839-8200

Circle 145 on Reader Service Card

# GIBBS & COX INC.

Naval Architects & Marine Engineers

1235 JEFFERSON DAVIS HIGHWAY  
ARLINGTON, VA. 22202  
703-979-1240

119 WEST 31 STREET  
NEW YORK, N.Y. 10001  
212-613-1300

6060 JEFFERSON AVENUE  
NEWPORT NEWS, VA. 23605  
804-380-5800

Circle 19 on Reader Service Card

# PROPULSION UPDATE

## Bird-Johnson Building World's Most Powerful CP Propellers For DDG-51

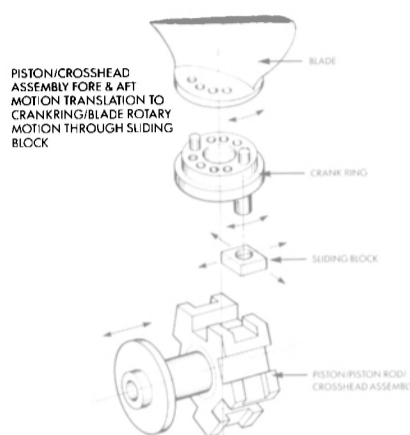
In March this year, Bath Iron Works Corporation awarded to Bird-Johnson Company of Walpole, Mass., a contract to supply the controllable-pitch main propulsion equipment for the DDG-51, the lead ship of the Arleigh Burke Class of guided-missile destroyers. Delivery of these CP propellers, at 50,000 shp each, will mark a world record CPP power output.

Extensive research and development enabled Bird-Johnson's engineers to develop this CPP system to conform to the unique requirements of the DDG-51, a surface combatant designed to reach speeds in excess of 30 knots. The CP propellers for the DDG-51 will provide a full range of ahead and astern thrust by changing the propeller pitch without changing the directional rotation of the propulsion machinery. The CPP system will impart a high degree of maneuverability to the ship as well as providing improved power utilization, faster acceleration, quicker stopping time, better slow-speed control, and reduced maintenance of engines and gear boxes.

Five major subassemblies will make up the CPP system: the propeller blades, hub assembly, oil distribution box, Prairie air emission system, and hydraulic system.

**Propeller Blades.** Each nickel-aluminum-bronze propeller blade will be finish-machined overall by numerically controlled machining, and skewed in form to minimize vibration and noise. The complete propeller assembly will consist of five such blades and measure 17 feet in diameter.

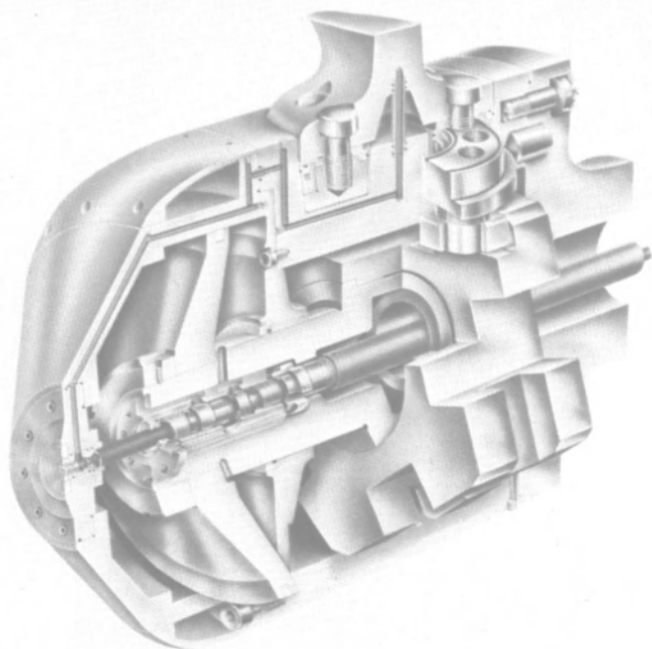
**Hub Assembly.** Pitch changes



are effected by the hub servomotor, which consists of a crosshead, piston, closed cylinder, piston rod, and main regulating valve. Sliding blocks fit in machined slots in the crosshead, and an eccentrically located pin on the underside of each crank ring fits in a machined hole in each sliding block. The crank ring, which is a closed die steel forging, fits over and rotates on a centerpost integral to the hub body. This crossbar and centerpost construction insures hub rigidity. Each propeller blade is attached to a crank ring with non-corroding K-Monel blade bolts. A bearing ring retains each crank ring in the hub body. When the piston, crosshead, and piston rod assembly moves axially, the sliding block exerts force on the pin of the crank ring. Axial movement of the piston rod thus causes rotation of the crank ring and blade assembly.

All moving parts of the hub work in oil. Blade seals preclude the pos-

Propeller Hubs and Blade Assembly



sible admission of seawater into the hub internals and prevent oil leakage. The hub body is centrifugally cast of nickel-aluminum-bronze and mounted on the propeller shaft flange with O-ring-sealed bolts. Dowels transmit all torque between the hub and body shafting and between the blades and crank rings.

**Oil Distribution Box.** The OD box is mounted on the forward end of the main reduction gear casing. It supplies the passages for pressure oil and return oil, provides a mechanical pitch indication, and also contains the auxiliary servomotor that actuates the valve rod. The OD box includes provisions for mechanically locking the propeller in the full ahead position for safe emergency take-home operation in the unlikely event of failure of the redundant hydraulic system.

**Prairie System.** A rotary seal at the OD box admits air from the ship's air supply to the rotating Prairie tubing located within the valve rod. Air flows through the tubing, enters drilled passages in the hub, and is directed to the base of each blade. Air then passes through a machined channel running along the blade's leading edge from the root to the tip. It is discharged into the water over the blade's surface through holes near the leading edge of the blade. Check valves prevent seawater from entering the system when it is secured.

**Hydraulic System.** The hydraulic system is of modular design, employing components selected to meet naval operating, shock, noise, vibration, and safety requirements. The hydraulic oil power module (factory-assembled to simplify installation) delivers oil to the OD box and thereby to the hub mechanism, with the main pump providing oil

flow and pressure under normal operating conditions. The pump discharges oil through filters to the pressure control assembly that regulates control oil and pressure oil. A second pump is provided for standby operation. Each pump alone provides sufficient oil flow to meet the specified pitch-changing time.

The Bird-Johnson DDG-51 propellers are being designed and manufactured for quiet operation. Due to its unidirectional rotation, the CP propeller always maintains the same leading edge, regardless of direction of thrust. The hydrodynamic blade form is never compromised by strength considerations for astern rotation. The result is that highly skewed blades can be used to effectively reduce pressure pulses and the resultant noise and vibration.

In addition to the CPP main propulsion system, on-board and shore-based spares have also been contracted for the DDG-51. Bird-Johnson operates a round-the-clock Parts Department for the prompt processing of all spare parts requests. A Service Department is staffed with representatives experienced in marine propulsion products and with demonstrated proficiency in mechanics, hydraulics, and electrical systems. Service representatives undergo intensive training in the design, operation, installation, maintenance, and repair of Bird-Johnson products to provide superior service—anytime and anywhere. These representatives are stationed strategically throughout the U.S. to assure timely support of customer requirements.

For further information on Bird-Johnson's products, service, facilities, and capabilities,

Circle 59 on Reader Service Card

## Fuel And Lube Oil System Repair Topic At Los Angeles SNAME Meeting



Principals at LA Metro SNAME meeting included (L to R): **Robert Levine**, Section chairman; **Paul Cromer**, papers chairman; **Thomas Junod**, author; **E.J. Penewell**, publicity chairman; **E.V. (Ned) Stewart**, past chairman; and **Lawrence Levy**, secretary.

The first meeting of the 86-87 season for the Los Angeles Metropolitan Section of The Society of Naval Architects and Marine Engineers was held at the princess Louise II Restaurant in San Pedro.

The author, **Thomas R. Junod**, marine and offshore manager of Equipment Engineering Inc. of Costa Mesa, discussed the history of

centrifugal cleaning of fuels and lube oils. He said that basic design considerations can greatly enhance the adaptability of these fuel and lube oil cleaning systems. The configuration is especially important for service, repair, and modification. His presentation was followed by discussion of specific application problems by the audience.



## SNAME 94th Annual Meeting Fifth International Maritime Exposition



The 94th Annual Meeting of The Society of Naval Architects and Marine Engineers and the concurrent

5th International Maritime Exposition will be held at The New York Hilton Hotel November 19-22, 1986. Society membership has now increased to approximately 12,000, including the most influential individuals in the marine industry.

The meeting will feature an outstanding technical program of 13 state-of-the-art papers selected for presentation by the Society's Pa-

pers Committee, chaired by **Jack Obermeyer**. Topics will include: innovative icebreaker bow design; developments in oceanographic ship design; ocean drilling equipment capabilities; ship propulsion gas turbine engines; time simulation of ship motions; shiphandling performance in restricted water; and instability of small high-speed craft. Concurrent technical sessions will

be held in the Trianon and Mercury Ballrooms on the third floor November 20 and 21.

The Exposition, which has become the most important and successful commercial marine industry show in the United States, will once again provide a marketplace for the display and demonstration of marine products and services. More than 150 participating companies





## Annual Meeting And Maritime Exposition

will mount exhibits on the Hilton's second floor, providing an excellent background for the exchange of information with industry professionals from around the world. The high caliber of attendees at this SNAME annual has markedly contributed to the continued success of both the technical programs and the exposition. Exposition hours are 2 to 6 pm on November 19, 10 am to 6 pm on

November 20, and 10 am to 4 pm on November 21.

The President's Luncheon will begin at 12:30 on Thursday, November 20, in the Grand Ballroom on the third floor, preceded by a general reception in the East Ballroom Foyer at noon. This luncheon will feature presentations of the Cochran, Linnard, and Student Papers awards, and an address by the out-

going SNAME president, **Perry W. Nelson**. His successor will be formally elected at the Business Session immediately following the luncheon.

The Society's 94th Annual Banquet, open to members and guests, will be held on Friday, November 21, in the Grand Ballroom beginning at 7:30 pm. The banquet program will feature presentation of

the three top SNAME medals, and the principal address by Adm. **Thomas B. Hayward**, USN (Ret.), former Commanding Officer Seventh Fleet in the Far East, Commanding Officer Pacific Fleet, and Chief of Naval Operations.

The David W. Taylor Medal "for notable achievement in naval archi-

(continued)



## 94th SNAME Annual Meeting

### —A Preview

texture and/or marine engineering" will be presented to **Robert N. Herbert**, a vice president of the Society.

The Vice Admiral "Jerry" Land Medal "for outstanding accomplish-

ment in the marine field" will go to **C. Larry French**, Past President of the Society.

The Davidson Medal "for outstanding scientific accomplishment in ship research" will be awarded to **William B. Morgan**, Head, Ship Performance Department, David W. Taylor NSRDC, and chairman of the Marine Technology Committee.

The 94th Annual Meeting will conclude on Saturday evening with the Dinner Dance and entertain-

ment in the Grand Ballroom; a large turnout is expected.

### Technical Papers

(See table for time and location.)

**Paper No. 1**—"A Bulbous Bow Design Methodology for High-Speed Ships," by **Jeff W. Hoyle**, **Bill H. Cheng**, **Bruce Hays**, **Bruce Johnson**, and **Bruce Nehrling**.

**ABSTRACT**—A series of bulb forms is developed and analyzed us-

ing a combined numerical and experimental approach to ascertain resistance and seakeeping characteristics. Using the FFG-7 Class of naval frigates as the reference hull form, nine variations in bulb design plus the bulbless hull form were analyzed by the DTNSRDC's XYZ Free Surface Program. Five of the bulb variations were tested in the U.S. Naval Academy's Towing Tank. The results from the computer predictions and the tank tests show remarkably similar trends, and the relative ranking of the bulb forms were identical. Furthermore, the addition of a bulbous bow to the FFG-7 hull form appeared to only marginally degrade the ship's seakeeping characteristics.

**Paper No. 2**—"The MV Arctic: New Bow Form and Model Testing," by **David Baker** and **Roy Nishizaki**.

**ABSTRACT**—The icebreaking cargo ship MV Arctic has recently been upgraded for fitting a new bow form. This paper describes the history, development, and extensive model test series that resulted in the new "Melville Bow" that has now been fitted to the ship. The results of the ice model tests, conducted in three different ice tanks, are compared and correlation problems discussed.

**Paper No. 3**—"Analysis and Design of Steering System Components for Arctic Class Ships," by **Balji C. Menon**, **Ian F. Glen**, and **Ian M. Bayly**.

**ABSTRACT**—Measured torque in the rudder stock resulting from rudder ice impacts during dedicated trials of three icebreaking vessels are presented. Vessel operational modes and the ice environment contributing to the recorded strains are discussed. Flexural strains in rudder stock resulting from rudder ice impacts on typical rudder arrangements of icebreakers are shown to be small in comparison with the torsional strains. This supports the experience that the major mode of steering system failure is associated with twisting of the rudder stock.

**Paper No. 4**—"A Study of Ship-handling Performance in Restricted Water: Development and Validation of Computer Simulation Model," by **Haruzo Eda**, **Peter K. Shizume**, **John S. Case**, and **Joseph J. Puglisi**.

**ABSTRACT**—Efforts have been made to develop realistic modelings of ship dynamic motions with emphasis on the case of restricted water under various projects such as Panama Canal Improvement Program. This paper presents major examples of development and validation studies, together with certain applications results. Actual data collection of model tests and ship trials were adapted for use in the computer model development.

**Paper No. 5**—"Developments in the Design of Oceanographic Ships," by **John C. Daidola** and **James J. Griffin**.

**ABSTRACT**—Developments in the design of oceanographic ships are reviewed in the time period from 1970 to the present, and possible

# "ONLY A CHOSEN FEW COULD SURVIVE THE TRIP."

*Noah*

Marine floodlights go through a tremendous flood of adversity. Torrential storms. Rough seas. And, constant pounding. Challenges that most fixtures can't live up to. However, Phoenix Super-Rough-Service "E" Series Marine Floodlights survive long after the rest, because they're built to weather the storm. For reduced downtime, during those critical loading and unloading operations. Completely sealed to keep out dirt and water, these lights feature exclusive Multiplane Socket Mounts which allow lamps to float safely under the heavy shock and vibration conditions that can overwhelm ordinary fixtures. Plus, the

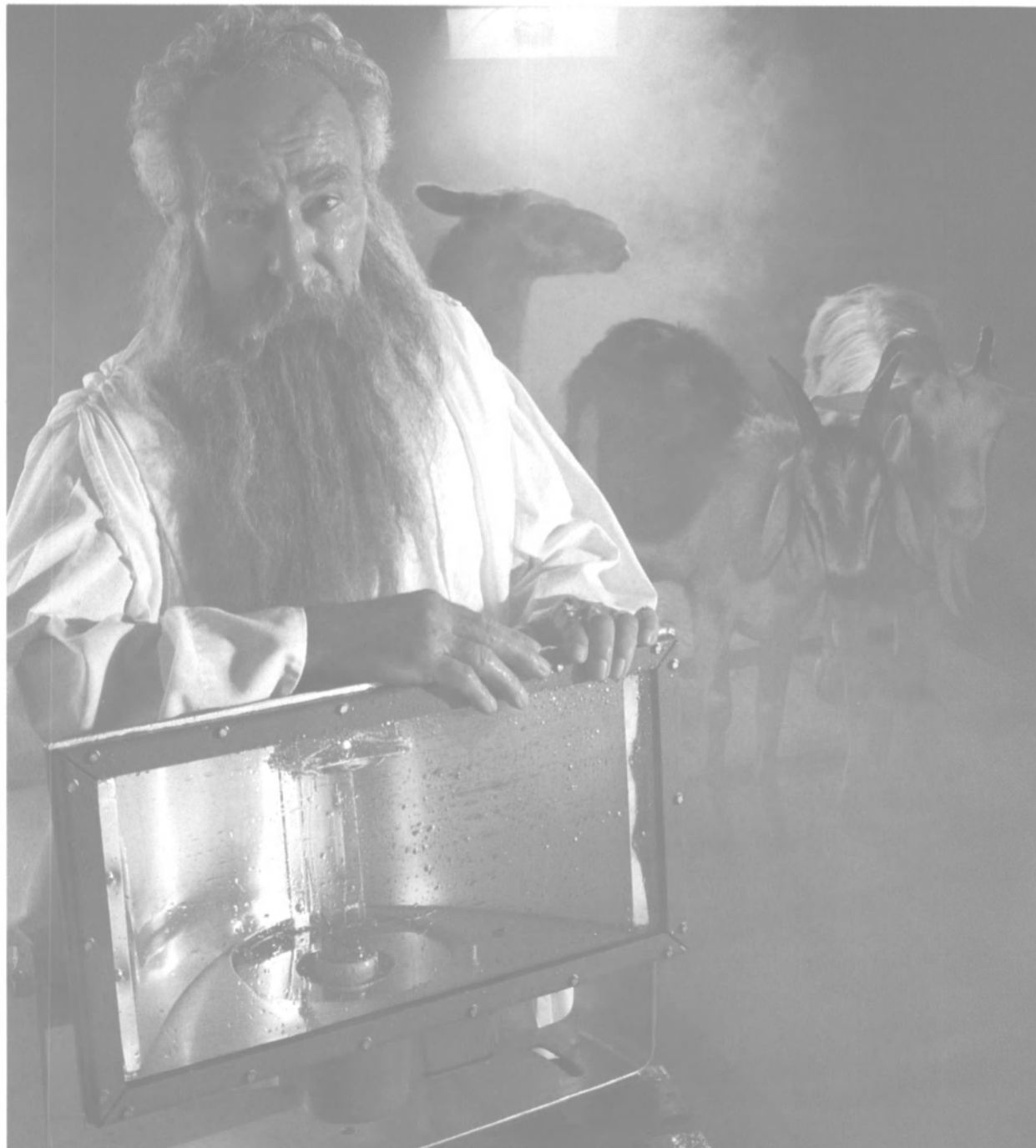
copper-free aluminum housings resist salt-water corrosion to keep lamps burning brightly. Even through storms that last 40 days and 40 nights.

All models accept mercury-vapor, metal-halide or high-pressure-sodium lamps. And, Phoenix offers variations for hazardous service.

So, choose the survivors. Phoenix "E" Series floods. Call your Phoenix distributor, today. Or, contact PHOENIX PRODUCTS COMPANY, INC., 4785 N. 27th St., Milwaukee, WI 53209, U.S.A. (414) 445-4100 TELEX 910-262-3389. See the lights; you'll become a believer.

PX-2-5

## PHOENIX®



(continued)

◀ Circle 235 on Reader Service Card

# PYPLOK®

## The New Generation in shipboard pipe connecting systems.

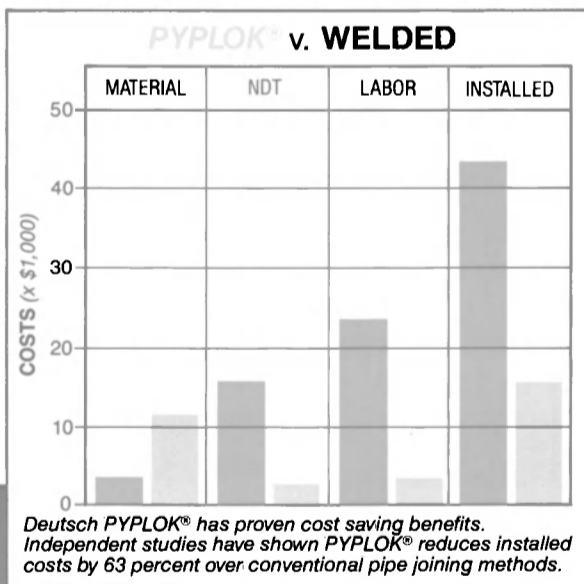


### FASTER INSTALLATION

There are only two tools you'll need to understand why PYPLOK is the new generation in shipboard pipe connecting systems. A stopwatch and a simple Go-No-Go gage.

Deutsch has taken a job that, in the past, was labor and time intensive, required a lot of rework and non destructive testing, and made the task of connecting shipboard piping faster, safer and, by using the simple gage, without costly NDT.

In fact, a major domestic shipbuilder recently compared PYPLOK swage marine fittings to their previous conventional welding method. The results were dramatic: **63 percent reduction in installed cost.** Which means for every \$100 you spend now, you could be saving \$63.



### FASTER INSPECTION

Plus, PYPLOK meets all of the requirements of NAVSEA and is approved by ABS, the U.S. Coast Guard and virtually all other maritime agencies. And with a worldwide Marketing and field service network, you can depend on Deutsch to deliver.

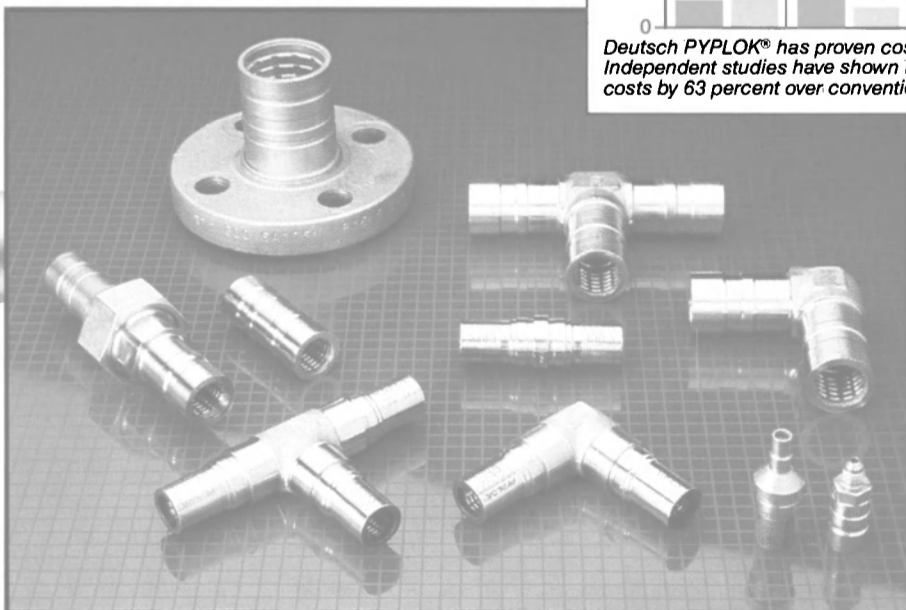
It's no surprise that PYPLOK is becoming the number one choice for shipboard pipe connecting systems.

For more information, call toll free: 1 (800) DEUTSCH or (213) 323-6200 inside CA or write: Deutsch Metal Components, 14800 S. Figueroa, Gardena, CA 90248, Attn: Marine Products.

When you're looking to advance the performance of your pipe connecting system, Deutsch can keep you a step ahead.

## PYPLOK®

PIPE CONNECTING SYSTEM



## DEUTSCH

### METAL COMPONENTS

Circle 280 on Reader Service Card

Helping you make ends meet.

SEE US AT THE INTERNATIONAL MARITIME EXPO.—BOOTH 126/128



## FRESHWATER AND SALTWATER CAPABILITIES ...IN A COMPETITIVE, QUALITY SHIPYARD!

With access to the world's oceans through the St. Lawrence Seaway, Bay Shipbuilding is both a freshwater and saltwater shipyard. Recognized as one of America's most progressive shipyards, Bay Shipbuilding has the facilities and capabilities to construct saltwater vessels up to 760' in length and Great Lakes vessels to 1,100' in length. Our facilities include 5 major building berths, 15 repair/outfitting berths, a 1,158' graving dock, 7,000-ton floating dry dock, 200-ton overhead gantry crane, plus numerical-controlled lofting and plasma burning equipment.

Our highly-skilled workforce, with more than 80 years' experience in steam and diesel propulsion systems, is complemented by complete in-house capabilities to design, build, repair, convert, re-power, retrofit, and jumboize any type of vessel.

Since 1902, Bay Shipbuilding has constructed a wide variety of vessels, including containerships, oil tankers,

derrick ships, passenger ships, and stern trawlers. Bay Shipbuilding has also constructed more self-unloading vessels than any other shipyard in the United States... and has converted numerous straight-bulk vessels to self-unloaders as well. Additionally, Bay Shipbuilding is equally qualified in all facets of barge construction as it has built tug/barge units, notch barges, hydro-dump barges, and self-unloading barges for the bulk, chemical, and petroleum industries.

PUT BAY'S PROVEN RECORD OF EFFICIENCY,  
ON-SCHEDULE DELIVERIES, AND QUALITY  
WORKMANSHIP TO WORK FOR YOU...

### BAY SHIPBUILDING CORP.

Subsidiary of The Manitowoc Company, Inc.  
605 North 3rd Avenue, Sturgeon Bay, WI 54235  
Phone: 414-743-5524 • Telefax: 414-743-2371

VISIT BAY SHIPBUILDING'S BOOTH, NO. 925-927,  
AT THE SNAME INTERNATIONAL MARITIME EXPOSITION



## 94th SNAME Annual Meeting

### —A Preview

future near-term developments are considered as well. A synopsis of recent oceanographic vessel construction, and user or scientific requirements for oceanographic ships are presented. General-purpose, geological, geophysical, and fisheries vessels are described.

**Paper No. 6**—"Liquid Sloshing in Slack Ship Tanks: Theory, Observations, and Experiments," by N.A. Hamlin, Y.K. Lou, W.M. Maclean, F. Seibold, and L.M. Chandras.

**ABSTRACT**—Sloshing waves in partially filled oscillating rectangular tanks are shown to agree well when determined experimentally, and by analysis using a nonlinear theory for smooth tanks, and a numerical simulation technique for tanks with two-dimensional obstacles. Cases of shipboard sloshing damage are cited. Model tests are given for sloshing forces on structural members, and sloshing pressures, in ship-like tanks with internal structure.

**Paper No. 7**—"Research Plan for the Investigation of Dynamic Instability of Small High-Speed Craft," by Steven H. Cohen and Donald L. Blount.

**ABSTRACT**—Small high-speed craft have been known to lose stability while under way even though they possess adequate stability at rest. Unstable conditions can include rapid loss in running trim, progressive heeling, or sudden combined roll-yaw motion. The primary objectives of this paper are to focus attention on this little-understood problem, describe recent developments, and present a long-range research plan.

**Paper No. 8**—"Time-Simulation of Ship Motions: A Guide to the Factors Degrading Dynamic Stability," by N.M. Elsimillawy and N.S. Miller.

**ABSTRACT**—A time-domain numerical simulation of the ship motions in regular sinusoidal waves in six degrees of freedom has been

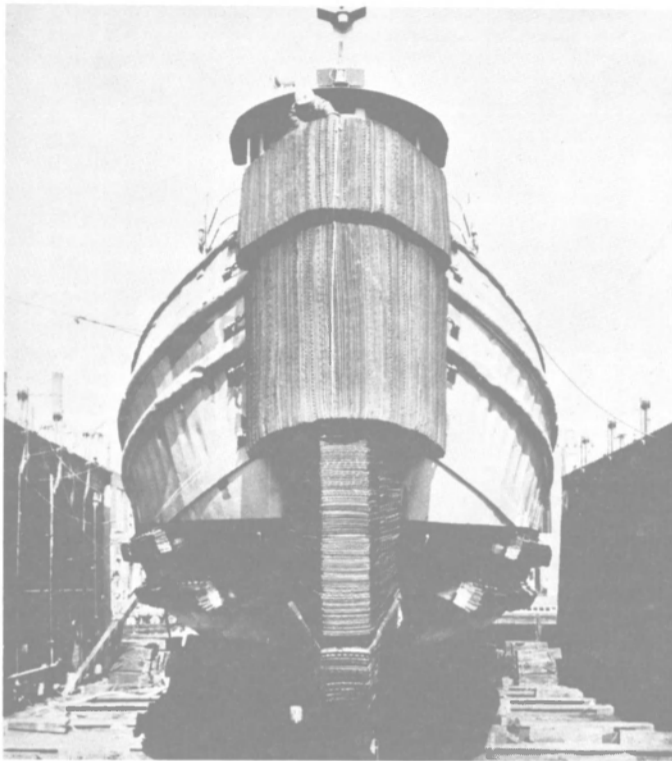
(continued)

#### PAPERS COMMITTEE

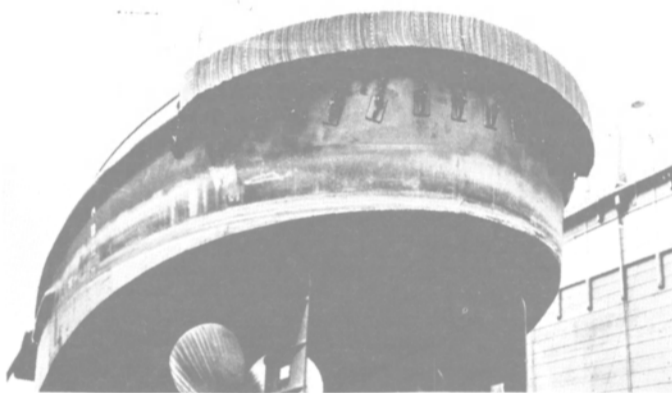
Jack A. Obermeyer, Chairman	
Jack W. Abbott	James A. Higgins
Steven G. Buttner	Chester L. Long
Warren C. Dietz	Peter M. Palermo
James F. Dunne	Spencer Reitz
Keith P. Farrell	Wm. duBarry Thomas
Jacques B. Hadler	Richard W. Thorp Jr.
	William E. Zimmie

◀ Circle 120 on Reader Service Card

# DO YOU NEED FENDERS?



U.S. NAVY SUBMARINE HANDLING TUG



MOBIL OIL STERN FENDER

## AS USED BY

- ★ U.S. NAVY
- ★ U.S. COASTGUARD
- ★ ARMY CORPS OF ENGINEERS
- ★ REINAUER/BOSTON FUEL
- ★ CHEVRON OIL
- ★ CROWLEY MARITIME
- ★ DILLINGHAM
- ★ EXXON
- ★ FOSS
- ★ G & H TOWING
- ★ McALLISTER
- ★ MOBIL OIL
- ★ MORAN
- ★ PANAMA CANAL CO.
- ★ SPENTONBUSH
- ★ SONAT
- ★ SUN OIL
- ★ TURECAMO

AND MANY OTHERS

## LET OUR THIRTY YEARS EXPERIENCE SOLVE YOUR PROBLEM

WE ENGINEER FENDING FOR: TUGS, BARGES, SHIPS, PIERS, DOCKS, MOORING DOLPHINS, OIL RIGS, DREDGES, PUSH BOATS, AND ANY OTHER APPLICATION REQUIRING A RESILIENT RUBBER CUSHION.

# 1-800-426-3917

**Schuylers** BUMPERS, INC.

STATEN ISLAND, N.Y.  
(718) 727-9697

WOODINVILLE, WA  
(206) 488-2255  
800-426-3917



## 94th SNAME Annual Meeting

### —A Preview

used to discover the dangerous situations that may lead a ship to capsize. An investigation into the dynamic stability of the trawler *Gaul*, which disappeared in heavy seas in 1974, is used as a demonstration. The basic approach of the simulation program involves the computation of the coefficients of the equations of motion at each step in time according to the exact wave and vessel position using strip theory.

**Paper No. 9**—"Ocean Drilling Program Equipment Capabilities," by **Dillard S. Hammett**.

**ABSTRACT**—This paper introduced new technology that extends the capability of drilling in 15,000-foot water depth for the purpose of gathering Earth Science data. The application of the petroleum industry experience to drill in these water depths has led to a successful first year of operation of the Ocean Drilling Program (ODP). The technology exchange between the scientists and drilling industry is a key part of the 14-year program. In addition to Earth Science, this program will provide data for future energy sources. The ODP has the potential to provide more useful data for mankind's life on earth than the space program has produced.

**Paper No. 10**—"Validation of Fatigue Life Prediction Using Containership Hatch-Corner Strain Measurements," by **Yung-Kuang Chen, Jeng-Wen Chiou, and Anil Kumar Thayamballi**.

**ABSTRACT**—Using measured strain data and recorded service experience related to fatigue cracking at a containership's hatch corner, the validity of various fatigue life prediction methodologies is evaluated. The correlation study considers deterministic S-N curve approach, probabilistic calculations of fatigue damage, and fracture mechanics assessments. Description of local cracking experienced, characteristics of the strain data measured, and the various analyses performed are presented.

**Paper No. 11**—"Governing Ship Propulsion Gas Turbine Engines," by **C.J. Rubis and T.R. Harper**.

**ABSTRACT**—This paper presents the results of analytical studies, computer simulations, and ships' trials in the investigation of the propeller loading mechanism, propulsion system cycling, and propulsion system response to speed and power governing in a seaway and under various ship maneuvers. Performance and design criteria for governing systems are discussed. This is a companion paper to two earlier (1972, 1982) SNAME Annual Meeting papers describing results of the Naval Gas Turbine Ship Propulsion Dynamics and Control Systems R&D Program.

**Paper No. 12**—"A Computer System Architecture for Naval Ship Design, Construction, and Service

Life Support," by **Daniel W. Billingsley and J. Christopher (Kit) Ryan**.

**ABSTRACT**—The computer-based "product model" is identified as the most important technical product of computer applications to ship design, construction, and service life support. The architecture of the Navy's Computer Supported Design (CSD) System, which supports product model development

during the design process, is described along with the applicability of the architecture to ship construction and service life support functions. The key role of the product model in the digital data transfer process is highlighted.

**Paper No. 13**—"Model and Full-Scale Tests with an Innovative Icebreaker Bow," by **E. Enkvist and E. Mustamaki**.

**ABSTRACT**—Unconventional

bow forms have been introduced to break thick level ice in Siberian rivers. In this paper some rounded and squared types are compared using model test results. An interesting bow candidate was full-scale tested using a 300-ton separate bow suspended from a tug. Conclusions are drawn as to advantages and drawbacks for the new bow, which is not intended for universal use on ice-breaking ships.

# A fast ferry tale that c

24,000 hours between overhauls! Obviously this is no ordinary ferry tale.

But it is the kind of reliability that, depending upon your operating profile and environmental conditions, you can expect from MTU's 396 series of engines.

It's the kind of reliability that keeps MTU engines on high-speed ferries from Hong Kong to Seattle operating at max-

imum speed and efficiency. The kind of reliability that kept the Virgin Atlantic Challenger II running at near full throttle through the gruelling North Atlantic for more than *three days!* And these were our *standard* 396 series production engines. That's reliability!

Precisely crafted with predictable German pride, our 396 series V-8, V-12 and V-16 marine diesel engines must pass a battery of extremely stringent tests before they are ever shipped for service. So you

*Virgin Atlantic Challenger II depended on MTU series-production engines during its June 1986 record-shattering transatlantic run. Average speed: 52 knots. Running time: 3 days, 8 hours and 31 minutes.*



**Exposition Participants**

Company	Stand No.
Action Threaded Products	202
Aeroflex International	213
Aero Nav Laboratories	823
Allied Marine Crane	124
American MAN Corporation	429-30
American Piping Products	130
Ameron	408
Aqua Signal	811
W.B. Arnold/Piston Products	409
Autronica Marine U.S.A.	224
BBN Laboratories	905
BP North America Petroleum	421
Bailey	810

Bardex
Bay Shipbuilding
Bethlehem Steel
British Shipbuilders
Bromma
Business Press International
CTI Industries
Canadian Consulate General
Caterpillar Engine
Centrico
Colt/Fairbanks Morse
Columbian Bronze
Combination Pump Valve
Combustion Engineering
Computervision

514 Consolidated Controls/Morgan
925 Conver-OSR
837 John Crane-Houdaille
825 Crossfield Products
505 Cummins Engine
928 Cunningham/Tenfjord
734 Dampa
620-646 Dana
217 Deutsch Metal Components
828 Devoe Marine Coatings
600 Diab-Barracuda
331 Duraline
934 Electrochemical
110 Engelhard
F-4 Engine Efficiency Associates

901
511
728
138
830
208
804
915
126
304
523
417
501
501
812

**EXPOSITION COMMITTEE**

Robert G. Mende, Chairman

Robert J. Bazzine	Thomas P. Mackey
Jerome M. Gruber	Jack A. Obermeyer
Robert B. Hedges	Charles P. O'Malley
Harry R. Yagel	

Environmental Securities	425
Envirovac	306
Esgard	819
Fairplay Publications	316
Farboil/Valspar	118
R.W. Fernstrum	814
Ferrous Corporation	913
Fincantieri/Overseas Shipyards	832
Furuno USA	F-11
Golar Metal	815
Graviner	808
Greitzer	509
Hayward Marine Products	225
J.J. Henry	400
Ian-Conrad Bergan	813
In-Place Machining	805
Infrasonik USA	500
Intertrade Industries	334
Inventory Locator Service	426
ITT Mackay	323
Kamatics	831
Key Houston	319
Walter Kidde	401
Krupp MaK Diesel	223
Lloyd's Maritime Data Network	510
MTU of North America	818
MacGregor-Navire (USA)	337
Marcon Engineering	215
Marine & Industrial Hydraulics	100
Marine Management Systems	310
Marine Moisture Control	302
Maritime Protection	311
Maritime Reporter	203
Marketec	207
Microsource CAD/CAM	423
Mindeco	307
Mitsubishi Heavy Industries	708
J. Arthur Moore	405
Murdock Engineering	F-6
Nav-Com Magnavox	529
Nelson Electric	104
New Wave Systems	827
Newport News Shipbuilding	204
Norfolk Shipbuilding	513
William W. Nugent	806
Omnithruster	210
Philadelphia Resins	317
Port of Portland	909
Raytheon Marine	824
Riley Beard	108
Rockmont	931
Roland Marine	833
M. Rosenblatt & Son	200
Royce Industrial Compressor	839
Saab Tank Control	212
Saltech Consultants/Sea Safety	330
Samsung Shipbuilding	318
Sardello	933
Scandvik	327
Siemens	700
Singer/Kearfott	313
Skarpenord	309
Sperry	238
Stow Manufacturing	424
Swedish Trade Council	227-234
Tanksystem	920
Tate Andale	413
Teleflex	324
Thomson-Gordon	404
Timsco	123
Total Transportation Systems	219
Transportation News Ticker	941
Unitor/Perolin	504
Vertec	801
Veson	936
Viking Life-Saving	908
Wagner Marine USA	507
Warren Pumps	132
Wartsila Diesel	720
Waukesha Bearings	101
Wright Austin	314
Xomox	816
Zurn Industries	519

# ould last 24,000 hours.

are assured, that whether it's 590 horses or ten thousand, you're going to get all the power and performance you pay for with amazing times between overhauls.

Plus, when it comes to specific fuel consumption, MTU delivers again. Our carefully developed fuel injection and turbo charging systems make a significant contribution to our engines' outstanding performance.

For example, the Victoria Clipper, shown below, carrying a full load of 300 passengers at a maximum speed of 31.5 knots, has an impressive mileage of 48 passenger miles per gallon.

Compare that to the operation of other engines in similar use.

MTU's quest for operating efficiency doesn't stop at the dock. We are sales and servicing agents and have single-source responsibility for the entire propulsion system, including the efficient KaMeWa water jet equipment, which also gives you maximum maneuverability in limited docking space. The system is engineered for minimum noise and vibration. That, coupled with the water jet equip-

ment to prevent overload, increases engine life even more.

So there you have it. Unequaled reliability. Unrivalled time between overhauls. Impeccable German craftsmanship. Unparalleled operating range and fuel efficiency.

It's a ferry tale that's like a dream come true. But we can make it your reality.

Find out more today. Write MTU of North America, Inc., 10450 Corporate Drive, Houston, TX 77478. Or call us at 713-240-4100. Or telex 203137 MTU UR.

**mtu**  
of North America

Circle 241 on Reader Service Card



(continued)



**MARQUIP\***  
**Marine Equipment**  
 Manufactured in the Northwest  
 with American Made Materials

- M Carpenter Stoppers**  
Six frame sizes available. Each size machined to fit a range of cable from the smallest (1") to the largest (3"). (Wedges are not interchangeable). Heavy duty Navy type. Built from alloy cast steel.
- M Towing Shackles**  
Designed for towing or heavy lifting. Made from heat treated, high strength alloy steel, in sizes from 1 1/2" to 4".
- M Towing Plates**  
Cast of nickel chrome steel in three sizes. Superior strength for safety, with maximum corrosion resistance.
- M Towing Sockets**  
For 2" & 2 1/2" wire rope sizes. Built from special cast alloy steel.
- M Capstans**  
Proof tested and certified. Air or hydraulic, electric or manual with a large range of sizes, horsepower, speed, pull and gypsy head. Competitively priced.
- M Devils Claw**  
Full retractable, claw simplifies transporting chain to the rig. Built with heat treated American steel for the most rugged use.
- M Cab-I-Mate Socketers**  
Two sizes for most large and small cable. One operator can do the work of two and do it in less time.
- Release Hooks**  
Six models, 25 to 150 ton capacities. Air or hydraulic, manual or electric release. Select from single, double, triple or quad mountings. Made in the USA with American materials for dependable strength.



**Washington Chain and Supply, Inc.**

2901 Utah Ave. South  
 P.O. Box 3645, Seattle, WA 98124  
 (206) 623-8500  
 CALL TOLL FREE  
 1-800-851-3429  
 (Washington State Only) 1-800-543-1304

\*Marquip is a registered trade name of Washington Chain & Supply, Inc.

Circle 27C on Reader Service Card



**94th SNAME  
 Annual Meeting**

—A Preview

The following listings are brief descriptions of the products and services to be exhibited at participating company booths. Listings are as provided at press time.

**ACTION THREADED  
 PRODUCTS**

Booth No. 202

Action Threaded Products, Inc. of Bridgeview, Ill., one of the largest stainless steel and nonferrous fastener distributors in the U.S., will exhibit hard-to-find fastener items such as long-length bolts, nylon insert lock nuts in T-316, nickel-copper, and 18-8; lag screws in many materials, as well as many more fastener items.

**AEROFLEX**

Booth No. 213

Aeroflex International Inc. of Plainview, N.Y., will display various sizes and configurations of its Wire Rope Isolators, which are stable mounting assemblies of high-quality stranded wire rope held between rugged metal retainers. These are currently being used for missile, shipboard, aircraft, transportation, shipping, and handling containers. In the same booth Vibration Mountings and Controls Inc. will display a complete range of acoustical material/noise control barriers for marine, industrial, and commercial applications.

**ALLIED MARINE CRANE**

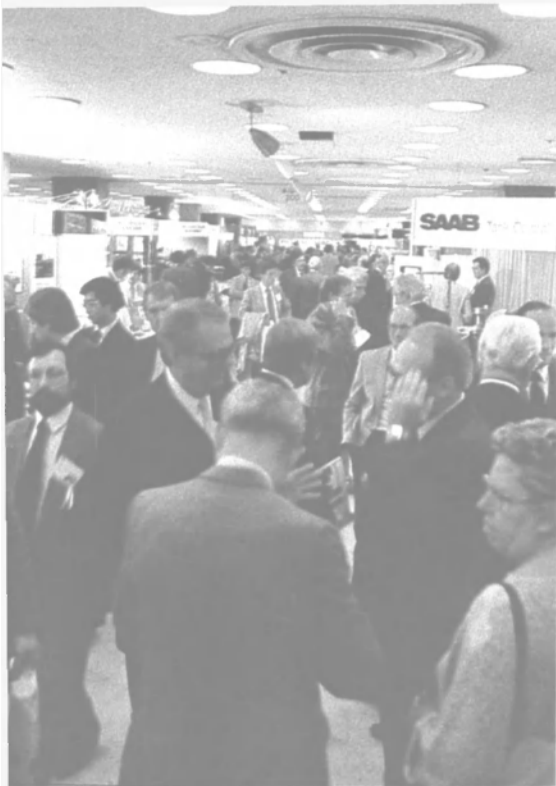
Booth No. 124

Allied Marine Crane of Portland, Ore., designs, manufactures, and distributes a product line of fully hydraulic marine cranes, both double tapered box boom and telescopic boom, in capacities from 60 to 90 tons. These cranes are designed for

**TECHNICAL AND SOCIAL PROGRAMS**

THURSDAY		
	TRIANON	MERCURY
9:00	1. <b>Bulbous Bow Design Methodology for High-Speed Ships</b> Hoyle/Cheng/Hays/Johnson/Nehrling	3. <b>...Steering Systems Components for Arctic Class Ships</b> Menon/Glen/Bayly
10:30	2. <b>The MV Arctic—New Bow Form and Model Testing</b> Baker/Nishizaki	4. <b>Study of Shiphandling Performance in Restricted Water...</b> Eda/Shizume/Case/Puglisi
12:00	<b>PRESIDENT'S LUNCHEON</b> Grand Ballroom Reception, East Ballroom Foyer	
2:00	<b>BUSINESS SESSION</b> Grand Ballroom	
3:00	5. <b>Developments in Design of Oceanographic Ships</b> Daidola/Griffin	6. <b>Liquid Sloshing in Slack Ship Tanks...</b> Hamlin/Lou/Maclean/Seibold/Chandras
3:30		
FRIDAY		
	TRIANON	MERCURY
9:00	7. <b>Investigation of Dynamic Instability of Small High-Speed Craft</b> Cohen/Blount	9. <b>Ocean Drilling Program Equipment Capabilities</b> Hammett
10:30	8. <b>Time-Simulation of Ship Motions...</b> Elsimilawy/Miller	10. <b>Validation of Fatigue Life Prediction Using Containership</b> Chen/Chiou/Thayamballi
12:00		
2:00	11. <b>Governing Ship Propulsion Gas Turbine Engines</b> Rubis/Harper	13. <b>Model and Full-Scale Tests with Innovative Icebreaker Bow</b> Enkvist/Mustamaki
3:00		
3:30	12. <b>Computer System Architecture for Naval Ship Design...</b> Billingsley/Ryan	
4:30		
5:00		
7:00		
7:30	<b>94th ANNUAL BANQUET</b> Grand Ballroom	
8:30		
SATURDAY		
7:00	<b>GENERAL RECEPTION</b> Grand Ballroom Foyer	
7:30		
8:30	<b>DINNER DANCE</b> Grand Ballroom	





## BBN LABORATORIES

Booth No. 905

BBN Laboratories Incorporated of Cambridge, Mass., a subsidiary of Bolt Beranek and Newman Inc., will demonstrate three of its many services—vibration control, dynamic measurements, and finite element analysis. A vibration control demon-

stration will compare four generic mounting systems. Instrumentation employing unique BBN-developed software will measure the effectiveness of these mounting systems. BBN's capability for improving productivity in structural design and analysis will also be demonstrated using its three-dimensional Space-Graph® system and its Butterfly® parallel processor.

## BETHLEHEM STEEL

Booth No. 837

Bethlehem Steel Corporation's marine construction group will highlight its newest facility, the Sabine Yard in Port Arthur, Texas, as well as the Sparrows Point yard

(continued)

applications in salt-laden atmospheres such as ships, barges, dockside, offshore drilling rigs, production platforms, and workboats. Other products furnished to the marine industry are diesel/hydraulic electrohydraulic power packages, and deck equipment such as mooring winches and davits.

## AMERICAN PIPING

Booth No. 130

American Piping Products, Inc. of New Hyde Park, N.Y., will feature quick-acting spectacle line blinds designed for cargo segregation, inert gas, and ballast piping systems. All sizes are available with either butt weld or flanged ends. The company will also display a complete line of strainers and check valves in all body materials and all pressure classes.

## AQUA SIGNAL

Booth No. 811

Aqua Signal Corporation of West Chicago, Ill., will exhibit floodlights that feature completely seamless, stamped stainless steel housings and electrostatically applied powder coatings; they are watertight and UL-listed. The company's watertight fluorescents have the same construction plus unbreakable polycarbonate lenses and removeable gear tray. Navigation lights will also be on display, as well as emergency lighting systems that provide a three-hour backup.

## BAY SHIPBUILDING

Booth Nos. 925 & 927

Bay Shipbuilding Corporation in Sturgeon Bay, Wisc., is one of the most modern full-service shipyards in the U.S. With access to the world's oceans through the St. Lawrence Seaway, Bay Ship can design, engineer, build, repair, convert, re-power, retrofit, and jumboize salt-water vessels to 760 feet and Great Lakes vessels to 1,100 feet.



# They carry the most advanced weapons against corrosion.




Military aircraft and ships arm themselves against corrosion with PRC sealants and coatings.

Based on proprietary PRC Permapol® Polymers, PRC sealants and coatings are elastomeric, providing the flexibility to "give" with movement caused by thermal shock, vibration, and other environmental factors.

Where other materials become brittle and crack over time, PRC products maintain their elasticity. In addition to having a high degree of chemical resistance, PRC coatings are also abrasion and impact resistant. PRC coatings conform to the rigorous standards outlined by the EPA under VOC regulations. The end result: long-term protection.

PRC Proreco® Decking Systems have a 15 year service history of providing deck maintenance cost savings on all types of high wear deck surfaces including aircraft carrier flight decks, helicopter landing platforms on military ships and on offshore drilling rigs, cruise ships, cable laying ships, ice breakers, fishing vessels and ocean going towboats of all types.

Contact R.N. Morris, Market Manager  
Products Research & Chemical Corporation,  
P.O. Box 1800, Glendale, CA 91209. (800) 423-2411.  
In California: (818) 240-2060.

 **Proreco® Deck Coating Systems**

Circle 257 on Reader Service Card →



## 94th SNAME Annual Meeting

### —A Preview

near Baltimore. The Maryland yard recently laid the keel for the first of two U.S. Navy oceanographic ships (T-AGS-39) it will build under a \$130-million contract.

The Sabine Yard, which went into service last fall, is the only facility of

its type in the Gulf area, and its 64,000-ton-capacity drydock, one of the biggest in the country, is capable of servicing any type of offshore drilling rig or mobile production platform, as well as all kinds of ships.

### BP NORTH AMERICA

Booth No. F-1

BP North America Petroleum,

Inc., the American arm of BP Marine International, will feature literature and exhibit a photo display covering marine diesel lubricants. The stand will be manned by experience staff members who can discuss application and technical specifications for today and tomorrow. Specific information will be available on marine cylinder lubricant development, including a display on the latest state-of-the-art technical service, the BP Oil Test Kit and

## How smart oil companies and other major operators reduce maintenance costs caused by poor fuel quality.

Fuel prices are down. But fuel *quality* is down even further.

Refining now leaves residual fuels with more damaging minerals and lower combustibility. Even diesel fuels are dirtier and harder to burn.

Fuel cost savings have been lost to increased maintenance.

### Ferrous FE-4\* Makes Fuel Burn Better

Deposit build-ups are a symptom of *incomplete combustion*. FE-4 accelerates combustion so fuel burns more completely before exhaust. FE-4 works on the

source of the problem.

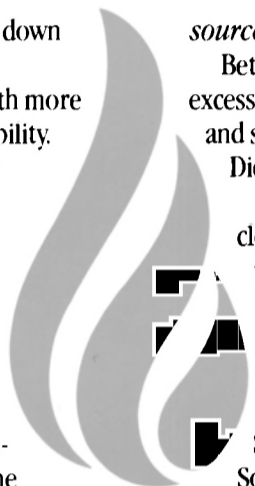
Better combustion reduces the need for boiler excess air that turns vanadium, silica, aluminum and sulfur into their most damaging forms.

Diesel injectors, rings and valves stay cleaner.

The results? Less frequent, less costly cleanouts. Less down time. Extended maintenance periods and longer engine life.

### Proven in Operation

Over 20 major operators have proven the value of FE-4\* including Totem Ocean Trailer Express, Kloster/NCL, West Coast Shipping and those who know fuels best — Sohio, Exxon, Arco and Texaco.



## Ferrous FE-4® The Fuel Tool

For research reports and more information, contact K. Chorlton, Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009 (206) 454-6320 Telex 4948063



Circle 141 on Reader Service Card



## Johnson® DURAMAX® MARINE PRODUCTS

BACKED WITH TOTAL SERVICES — QUALITY ASSURANCE — EXPERIENCE — EASE OF AVAILABILITY — PROVEN PERFORMANCE

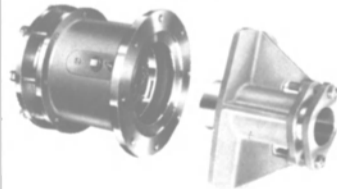
### WATER LUBRICATED BEARINGS



Sleeve and Flanged Types plus All-Rubber Demountable Stave Type — Full Range of Sizes.

CIRCLE 200 ON RSC

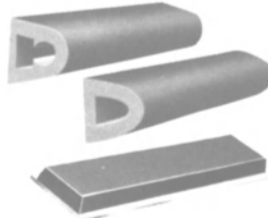
### STUFFING BOXES



Full range of Types and Sizes. Inflatable Air Seal Ring type seals around shaft during packing change without dry docking.

CIRCLE 201 ON RSC

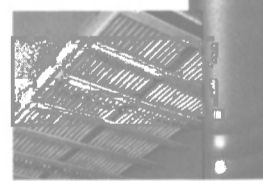
### RUBBER FENDERING



Tow Knees in three standard thicknesses - Various profiles of Fendering for vessel and docks.

CIRCLE 202 ON RSC

### KEEL COOLERS



90-10 Cupro-Nickel Spiral Tube Coolers for maximum heat transfer - 4 to 24 tubes - single and double bank models.

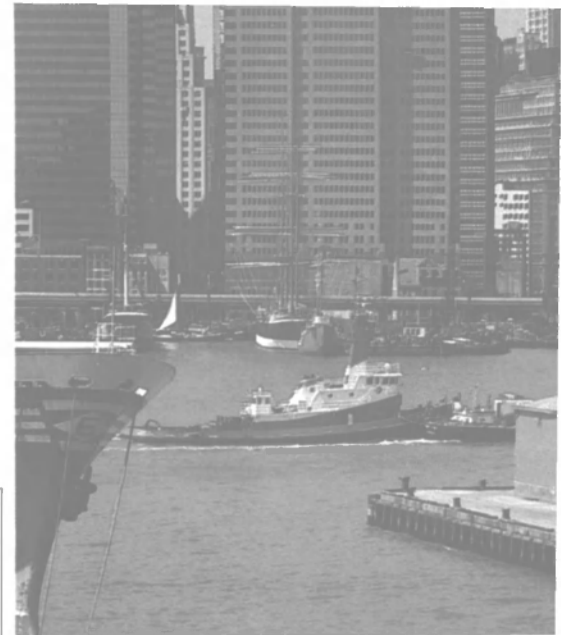
CIRCLE 203 ON RSC

Send for latest Catalogs. Dependable Johnson-Duramax Marine Products are Sold and Serviced Worldwide.

**DURAMAX® MARINE**  
division of The Johnson Rubber Company  
A Subsidiary of Duramax Inc.

© T.M. Reg. 6-2022-485

Middlefield, OH 44062 Area Code: 216/632-1611  
Telex: 21-2564JRCM UR / Cable: "DURAMAX"  
Dependable Products For Ships Throughout The World



Comprehensive Used Oil Analysis System.

### BROMMA

Booth No. 505

Bromma, Inc. of Roxboro, N.C., recently purchased the rights to the ROPCO spreader line formerly manufactured by RPC Corporation. The exhibit will feature spreader bars for container handling that can be utilized under a variety of cranes and lift trucks. From self-leveling automatic to simple single-point manuals, Bromma has the vital link in containerization.

### CAE ELECTRONICS

Booth No. 630

CAE Electronics Ltd. of Saint-Laurent, Quebec, will display an integrated machinery control system that combines the flexibility of digital computers with the simplicity of ergonomically designed control consoles employing dynamic color graphics displays. This system is said to offer significant savings in installation, operating, maintenance, and training costs.

### COLT INDUSTRIES/ FAIRBANKS MORSE

Booth Nos. 600/602/604

The Fairbanks Morse Engine Division of Colt Industries, Beloit, Wisc., will exhibit literature and sales data for the Pielstick PA series engine with a horsepower range up to 8,000 bhp, used for marine and stationary applications, as well as literature and a model of the Pielstick 2.6 engine.

### COMBUSTION ENGINEERING

Booth No. 110

Combustion Engineering, Inc. of Windsor, Conn., is helping the Navy cut the cost of turning seawater into drinking water aboard the Ticonderoga Class (CG-47) guided-missile cruisers. CE's waste heat recovery boilers also generate high-quality saturated steam for ship's heating

as well as steam for the galley, laundry, and deicing system. Annual projected fuel savings for a CG-47 Class ship is estimated at more than \$200,000.

## COMPUTERVISION

Booth No. F-4

Computervision Corporation of Bedford, Mass., a leading CAD/CAM vendor to the marine industry, will exhibit its new CADDStation™ system running a range of design software. Applications include structural, equipment, piping, HVAC, and electrical. The CADDStation is based on Sun Microsystems hardware. It is a 32-bit workstation with a Motorola 68020 microprocessor. It also features such industry standards as UNIX 4.2, Ethernet, TCP-IP communications protocol, in addition to full compatibility with existing Computervision CADD (R) 4X data bases.

## CONSOLIDATED

Booth No. 901

Consolidated Controls Corporation of El Segundo, Calif., manufactures Morgan electric-motor-driven valve actuators that are in use aboard more than 70 U.S. Navy ships (including the DDG-51 under construction at Bath Iron Works) to provide remote control for critical valving. Use of a unique, slow-speed nutating motor design allows precise valve positioning and long-term, reliable operation.

## CONVER

Booth No. 511

Conver-OSR, Inc. of Kenilworth, N.J., is a manufacturer and supplier of container, trailer, and automobile lashing and securing materials, and also designs and engineers containerhip cell guide systems. The company will introduce its recently developed "MACS 3" ship computer system, designed to calculate and control a ship's stability, longitudinal strength, and torsional stress.

## C-TECH

Booth No. 628

C-Tech Ltd. of Cornwall, Ontario, is a leading producer of Omni Sonar and related underwater acoustic devices for application in commercial fishing, iceberg detection, and patrol vessels. The company also manufactures cylindrical and planar array transducers, electronic scanners (sonar), and standard electronic modules for NATO Navies.

## CTI INDUSTRIES

Booth No. 734

CTI Industries, Inc. of Fairfield,

Conn., will exhibit shields/seals for life extension of all condenser and heat exchanger tubes, tube liners, condenser cleaning brushes and kits, polymer-epoxy coatings for all equipment, condenser inspections, video horoscope, failure analysis, and technical reports.

## CUMMINS

Booth No. 830

Cummins Engine Company of Columbus, Ind., taking its proven V-12 design with 5½-inch bore and 6-inch stroke and applying the latest diesel technology, has produced a new more powerful engine matched to the tough requirements of the marine industry. Rated 675 continuous bhp at 1,800 rpm, the compact VTA28-M is an improvement of 55 bhp with a fuel increase of less than one gallon per hour. Cummins also offers a complete line

of marine generator sets with a power range from 37 to 925 kw.

## CUNNINGHAM/TENFJORD

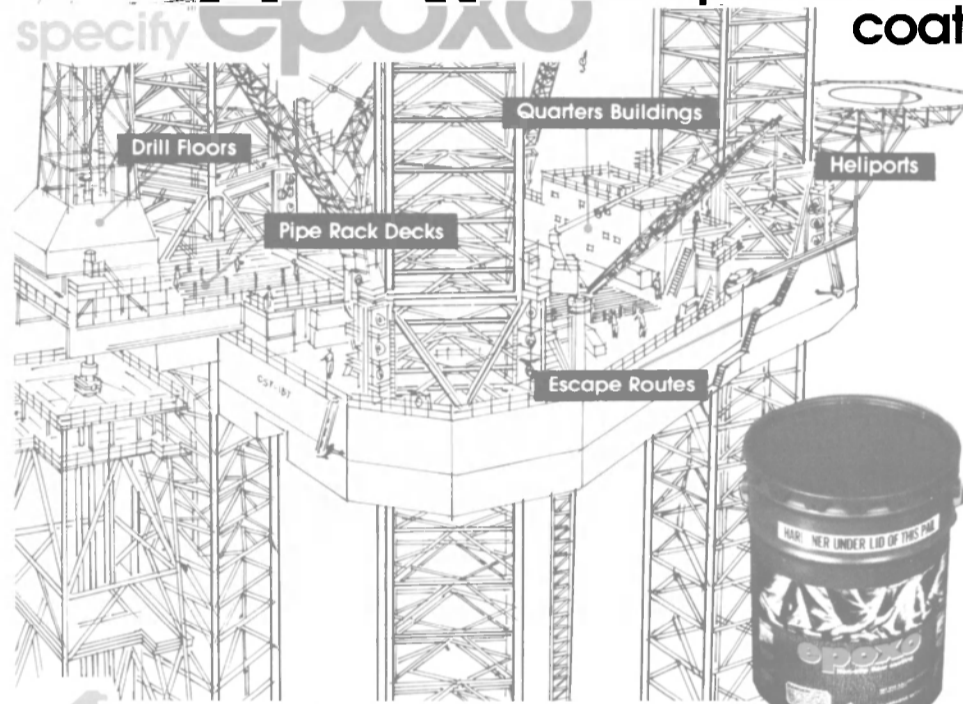
Booth No. 208

Cunningham Marine/Tenfjord, Inc. of Hoboken, N.J., will feature hydraulic systems, engineering ser-

(continued)

# Stop slips and falls...

specify **EPOXO**™ the proven non-slip coating for offshore



EPOXO is the high profile, non-slip deck covering used on every Navy aircraft carrier built since 1962.

- Offshore industry's leading non-slip deck coating
- Superior impact and abrasion resistance
- Highly corrosion resistant
- Resists oil, solvent, and hydraulic fluids
- High profile for all-weather traction
- Easy to apply
- Easy to maintain

#### Areas for application:

- Pipe Rack Decks
- Heliports
- Production Decks
- Quarters Buildings
- Drill Floors
- Escape Routes
- Storage Areas
- Equipment Decks
- Mud Rooms
- Cellar Decks
- Walkways/Catwalks

DISTRIBUTORS WORLDWIDE



**AMERICAN ABRASIVE METALS COMPANY**

460 Coit Street, Irvington, NJ 07111 (201) 373-7060 Telex: 138235 EPOXO IRON

Circle 103 on Reader Service Card

## ENTERPRISE MARINE AND INDUSTRIAL REPAIRS INC.

Bringing shipyard experience to your doorstep. Specializing in...

- Voyage & Casualty Repairs
- M & R Pierside/AT SEA
- Special marine projects
- Industrial & Marine Fabrications

Count on us for quick, reliable response to your needs.

Contact: Joseph Cangelosi or Carl McBratney at Enterprise Marine, Tyler and Coastwise Streets, Port Newark, New Jersey 07114, (201) 589-2086, Telex: 219744 Code 107

Circle 114 on Reader Service Card



## FRED DEVINE

DIVING & SALVAGE, INC.

Marine Salvage • Harbor Clearance • Wreck Removal • Pollution Control • Diving Services • Ocean Engineering • Fire Fighting • Tanker Lightering • Ocean Outfalls • Flyaway Salvage Crews • Anchor & Chain Recovery



DIVING & SALVAGE, INC. 6211 N. Ensign, Portland, OR 97217 (503) 283-5285 Telex 36-0994 DEVINESALV

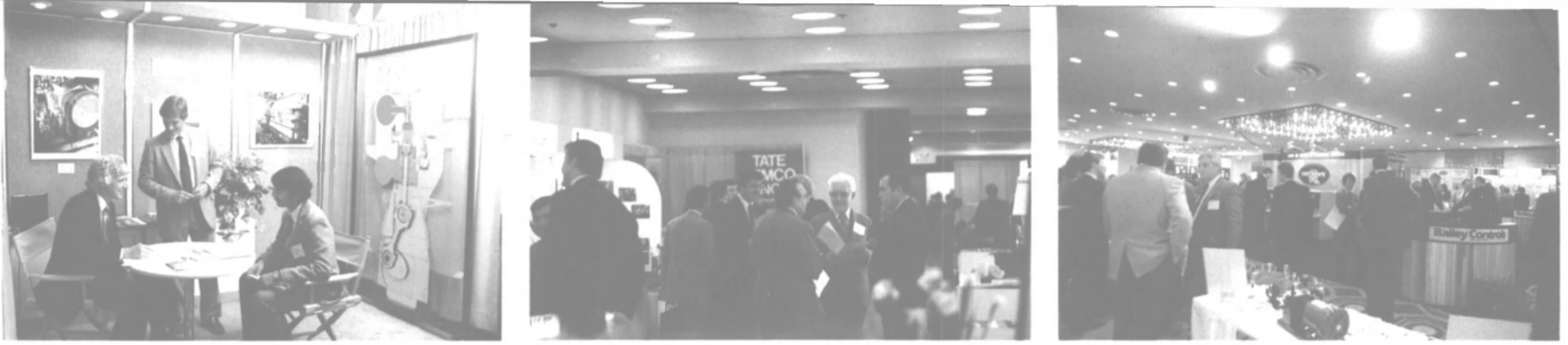
Write for full capability information and specifications on the SALVAGE CHIEF, the finest salvage ship afloat.

Headquarters 6211 N. Ensign, Portland, OR 97217 (503) 283-5285 Telex 36-0994 DEVINESALV

Quick, effective response to any marine casualty worldwide.



Circle 187 on Reader Service Card



## 94th SNAME Annual Meeting

### —A Preview

vices, and repairs available worldwide. Products on display will include variable-displacement hydraulic pumps, hydraulic steering systems including rotary-piston steering gears, and other hydraulic equipment.

est ranges of clutches and brakes in the industry, with proven products from Formsprag and Wichita. Its wide range of related power transmission products include Dura-Flex couplings, Spicer, GWB, and Con-Vel U-joints; Lo-Rez steel spring, Elastomeric, and RT couplings. Its Wichita/LoRez flexible coupling combination provides efficient vibration control, easy installation and maintenance, and many other benefits for the marine industry.

vanced computer program system employing the finite element method to solve a wide variety of engineering problems related to motion and structural analysis. The program is capable of performing linear or nonlinear dynamic as well as static analysis of almost any type of structure. The system is especially designed to meet the requirements for analyses of ships and offshore structures.

shipboard piping by mechanical attachment using lightweight swage tooling. Installations are completed in seconds and require no NDT. The Pyplok system is approved by the American Bureau of Shipping, U.S. Coast Guard, and NAVSEA.

### DANA

Booth Nos. 915/917

Dana Corporation's Power Transmission Sales offers one of the wid-

### DET NORSKE VERITAS

Booth No. 801

The Houston office of Det norske Veritas will exhibit SESAM, an ad-

### DEUTSCH

Booth Nos. 126/128

Deutsch Metal Components of Gardena, Calif., will feature Pyplok® swage marine fittings that join

### DEVOE MARINE

Booth No. 304

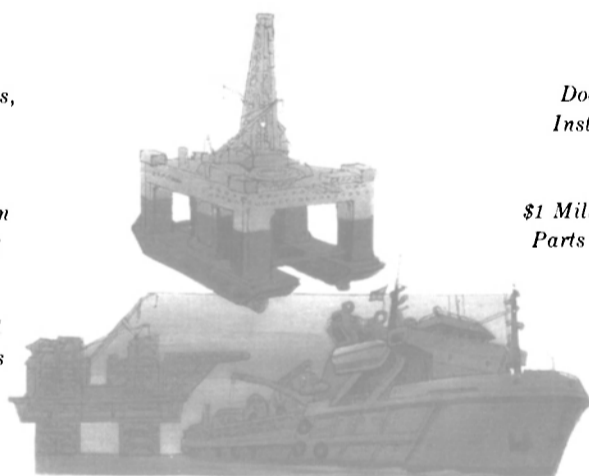
Devoe Marine Coatings Company of Hoboken, N.J., will display its line of quality epoxy coating products, including Bar-Rust 235 and 245, rust tolerant and petroleum resistant, devran 258 and 259, water base epoxy coatings. Devoe will also

## Raytheon... The One-Stop Source for Quality Marine Electronics Sales and Service

8 Locations, U.S.A.

Navigation Packages

Shipyard Programs



Dock Side Installation

\$1 Million Dollar Parts Inventory

### MAINTENANCE CONTRACTS

**RADAR:** Computerized or relative  
**FATHOMETER:** Survey—Fish Finders Navigation  
**SOLAS RADIO STATION:** Satellite Communications  
**GYRO & Steering System—Fuel Management Systems**

*The World's Best Service Engineers Offer the Finest Service at the Best Price in the Industry.*

## Raytheon Service Co.

100 Roester Rd. (Suite 103)  
 Glen Burnie, MD 21061 • (301) 761-4300

NY/NJ	718-981-1090	New Orleans	504-835-6491
Phillie	609-662-4322	Houston	713-941-2700
Balto	301-761-4300	Los Angeles	714-432-9252
Norfolk	804-464-3318	San Diego	619-571-1555

Price Delivery Information—Contact Any Office

Circle 271 on Reader Service Card

## FOR DIESEL ENGINES BMEP BALANCER MODEL 300-A

STEADY • ACCURATE • REPEATABLE • RELIABLE

### SPECIAL FEATURES

- Attaches to standard indicator valve.
- Completely passive system thoroughly reliable for extended service.
- Balances load distribution in a multicylinder engine with precision and ease.
- Reading of pressure gauge gives index of power developed in cylinder.
- Fuel rack can be adjusted up or down while watching gauge move to desired setting.
- Results in a smooth running, efficient engine that sounds right.
- Rugged construction of stainless steel, yet light in weight.
- Requires no maintenance.
- May be used to indicate engine loading for a remote installation having calibration chart for engine. Reading needs no correction for ambient temperature or altitude.



EASY TO USE

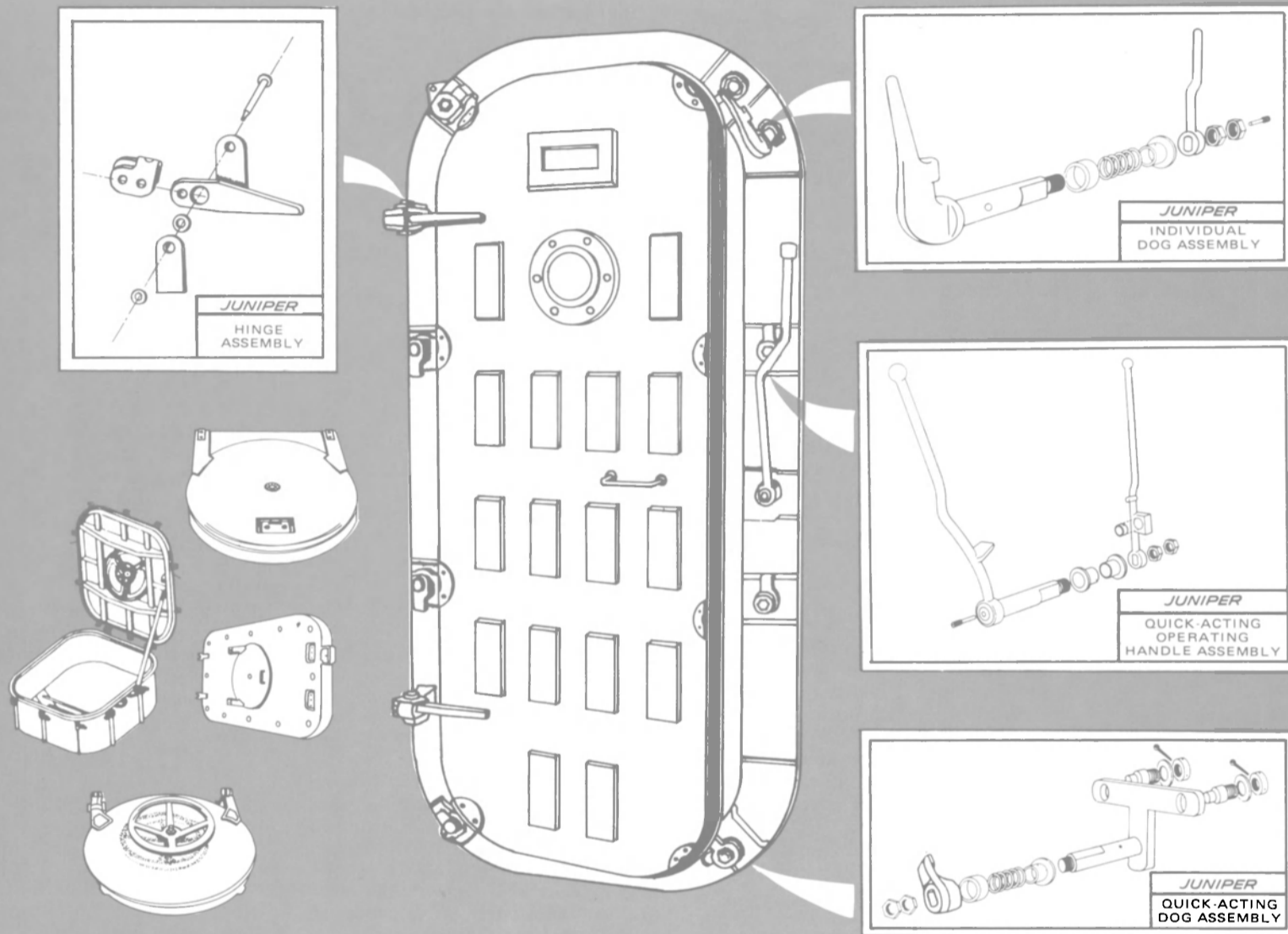
FOR IMMEDIATE INFORMATION CONTACT.  
 Joseph Leto (617) 746-0200

**General Thermodynamics Corporation**

P.O. Box 1105, 210 South Meadow Road, Plymouth, MA 02360

Circle 105 on Reader Service Card

# *JUNIPER* loves it when a plan comes together...



## **Largest inventory in the country –**

From individual components to completely assembled  
Navy Standard doors, hatches and scuttles.

- dogging assemblies ■ hinge assemblies ■ drop bolt assemblies ■ bushings
- springs ■ packing plungers ■ studs ■ handwheels ■ spindles
- ballistic parts ■ wedges ■ gaskets ■ con rods & collars

## *JUNIPER INDUSTRIES INC.*

72-17 Metropolitan Ave., Middle Village, N.Y. 11379  
Telephone: 800-221-4664 Telex: 12-5141





**94th SNAME  
Annual Meeting  
— A Preview**

show a full line of conventional coatings products.

**DURALINE**

Booth No. 417

Duraline of Central Islip, N.Y., a division of J.B. Nottingham & Co., will display watertight electrical connectors designed specifically for the marine environment, including temporary lighting and power distribution; ship-to-shore drydock and hotel power connectors; 30-, 60- and 100-amp 120-volt connectors and receptacles; portable power distribution panels; 200-amp casualty wiring systems for frigates, destroyers and aircraft carriers; and electrical resistance stripheater systems for pre- and post-weld heat treating of HY80 and HY100 steels.

**ELECTROCATALYTIC**

Booth Nos. 501/503

Using its quarter century of marine experience and precious metal based electrocatalytic expertise, Electrocatalytic, Inc. of Union, N.J., offers a broad range of proven products and ship and offshore use. The display will feature Capac and Chloropac equipment packages used to eliminate corrosion and biofouling, saving shipowners millions of dollars every year in operating expense.

**ENGINE EFFICIENCY**

Booth No. 812

Energy Efficiency Associates is a diversified microprocessor hardware and software development company with offices in Rahway, N.J., Marro (New Orleans), La., and Bellevue, Wash. The display will feature the EZ 1000-Microprocessor, Control, Monitor and Alarm System. Applications in ABS ACCU/NVC1-69 unmanned engine rooms, automation, exhaust gas cylinder temperature monitors, automatic generator controls, automatic planned maintenance.

Also on display will be ALP software Automatic Loading Program—Cargo Inventory/Trim/Stability/Stress for containerships—used with IBM PC. Fuel Processor FM 1000 will also be displayed.

**FERNSTRUM**

Booth No. 814

R.W. Fernstrum & Company of Menominee, Mich., offers three types of keel coolers for the marine industry—the standard series of Gridcoolers, the TB series, and the aluminum series. The standard Gridcooler is constructed of 90/10 copper-nickel headers and tubes, silver-brazed together to form a compact, durable assembly. The aluminum series is manufactured from 5000 series aluminum alloys, especially chosen for their resistance to saltwater corrosion and their compatibility with the aluminum hull. The TB series Gridcoolers are designed for stationary applications such as drill rigs and production platforms. This series eliminates the need for deck-mounted heat exchangers and radiators, thereby opening up limited deck space and saving horsepower needed to drive a fan or seawater pump. All Fernstrum Gridcoolers are completely assembled and factory-tested to insure years of reliable service.

**FERROUS**

Booth No. 913

Ferrous Corporation of Bellevue, Wash., will present information on its FE-4 catalyst in both written and video formats. FE-4 is a true combustion catalyst in liquid form that is easily blended with diesel and bunker fuels. It is said to improve combustion, reducing fireside deposits in boilers and engine-damaging carbon.

**FITZWRIGHT**

Booth No. 646

Fitzwright Suits Ltd. of Survey, B.C., manufactures and distributes immersion suits, helicopter transport suits, handy elevated lifting package, EPIRBs, Mayday II strobe lights, and a thermal protection suit.

**GOLAR METAL**

Booth No. 815

Golar Metal Inc. of Lionville, Pa., will exhibit marine incinerators, stripping ejectors, sliding watertight doors, fire rated safety windows, aluminum helidecks, gangways and accommodation ladders, accommodation systems, ships' windows, and induction bending machines. Golar will introduce the new compact, high-capacity OGS Series incinerator, which features continuous loading.

**GREENING DONALD**

Booth No. 632

Greening Donald Company Ltd. of Hamilton, Ontario, a wire rope manufacturer established in 1859, has developed a product line of Kevlar fiber ropes using unique, high strength, flex fatigue resistant designs. These strength members are said to have outstanding potential for mooring and handling lines, dredge and sampling lines, etc.

**GREITZER**

Booth No. 509

Greitzer, Inc. of Riverdale, N.J., will exhibit grease-intercepting hoods for galley cooking equipment ventilation. These hoods are manufactured to exacting Navy specifications and are approved by the Naval Sea Systems Command. They are available in Navy or commercial marine models.

**INDAL**

Booth No. 644

Indal Technologies Inc. of Mississauga, Ontario, is a leading supplier of support systems for shipboard helicopters, including landing assist and securing systems, telescope hangars, hangar doors, flight decks, and the Helicart, a one-person ground-handling system for skid-mounted helicopters.

**INFRASONIK**

Booth No. 500

Infrasonik USA of Kirkland,

Wash., will display the Infracone, a low-frequency sonic horn that reduces the need to soot blow in marine main boilers (turbine ships) or in exhaust gas boilers (gas ships). With 71 Infracones on 46 U.S.-owned vessels, it has proven itself a cost-saving device in the operation of the marine boiler. Operating on a continuous basis, Infracones are at work preventing soot build-up even in port where steam soot blowing is prohibited.

**INTERTRADE**

Booth No. 334

Intertrade Industries of Huntington Beach, Calif., will exhibit its product line of shipboard and dock-mounted, foam-filled marine fenders and buoys. The company will highlight its turnkey lightering vessel fendering systems, including fenders, davits, electrical/hydraulic systems, and American Bureau of Shipping and U.S. Coast Guard approvals.

**INVENTORY LOCATOR**

Booth No. 426

Inventory Locator Service, Inc., headquartered in Memphis, has for many years supported both the commercial and military markets in identifying and locating aircraft parts. Now it offers the same service to the maritime industry. By initiating an inquiry using either part number, National Stock number, or Mil/Spec Mil/Standard number, or drawing number, the other related information will be shown. The company can also provide procurement history for price analysis.

**ITT MACKAY**

Booth No. 323

The ITT Mackay Division of ITT Telecom Products Corporation, Elizabeth, N.J., will exhibit the following: satellite communications, ballast oil pollution monitor, bilge oil pollution monitor, Navtex receiver, Global Positioning System (GPS), fuel meters, fuel viscosity control system, and a full line of communications and navigation systems.

(continued)

**SWDiesel Gulf Inc. "Stork Diesel"**

Member of the "Stork Werkspoor Diesel Group"  
Heavy duty, heavy fuel, four stroke engines, 700-17,000 HP

1500 Fourth Street, Suite F,  
Harvey, LA 70058  
telex 460080; telefax (504) 361-0606  
Phone: (504) 361-0664

For the West Coast,  
2405 NW Market Street  
Seattle, WA 98107  
telex 0152726 Phone: (206) 789-8383

For Parts and Technical Support call "STORK DIESEL" (504) 361-0664

Circle 310 on Reader Service Card



# With COMSAT Maritime Services, every signal comes in loud and clear.

Computer to computer. Packet data networks. News and weather reports. Electronic mail. Radio and television. Even credit card telephones and automatic banking services.

Only COMSAT Maritime Services can give you shipboard communications that rivals anything available on shore. For both business and pleasure.

For business, any ship equipped with an INMARSAT ship earth station can send and receive electronic mail, connect to a packet data network (at speeds up to 9600 bps), and communicate with on shore computers. Telex and facsimile messages can be sent and received. Ships can receive up-to-the-minute weather information, including digital graphics.

For pleasure, COMSAT Maritime Services can connect on-board telephones with almost any telephone in the world, send daily news reports, and provide live radio and television programming. Even electronic banking and credit card phone services are available.

With the communications package that only COMSAT Maritime Services can provide, it will be smoother sailing for you, your crew, and your passengers.

For more information call Bob Eichberg, Vice President, at 1-800-424-9152, or write:

 **COMSAT**  
Maritime Services

22300 COMSAT Drive Clarksburg, MD 20871.

Circle 170 on Reader Service Card



## 94th SNAME Annual Meeting

—A Preview

### KAMATICS

Booth No. 831

Kamatiks Corporation of Bloomfield, Conn., a Kaman company, produces three principal product

lines: Karon self-lubricating bearings; Kaflex maintenance-free, flexible driveshaft couplings; and composite components. Kaflex couplings utilized successfully in main propulsion auxiliary drive systems applications, are designed to transmit power while accommodating high angular and axial misalignment. Composite components of graphite, kevlar, and glass fibers feature high strength and light weight.

### KEARFOTT/SINGER

Booth No. 313

The Kearfott Division of The Singer Company is a manufacturer of quality marine windows, windshield wipers, doors, portlights, and electrically heated windows. In addition, Kearfott has added lightweight transparent armor that is a key element in increasing security on ships, patrol boats, and other military vehicles.

### KEY HOUSTON

Booth No. 319

The Key Houston division of Jacksonville Shipyards, Inc. in Jacksonville, Fla., manufactures a complete line of abrasive blasting and related equipment designed for marine applications, such as bulk blast pots, hoppers, vacuum recovery units, dehumidification equipment, wet scrubbers, air dryers, aftercoolers, and abrasive reclaim systems.

### KOBELT

Booth No. 634

Kobelt Manufacturing Company Ltd. of Richmond, B.C., for many years has been involved in the design and manufacture of deck machinery controls and disc brakes. The company can offer a complete line of pneumatic, mechanical, and electronic controls, as well as propeller shaft brakes up to 50,000 hp. Kobelt features bronze and stainless steel construction, competitive pricing, and quality control.

### LLOYD'S MARDATA

Booth No. 510

Lloyd's Maritime Data Network (MARDATA) of Stamford, Conn., is a subsidiary of Lloyd's Maritime Information Services. It combines the unique data sources of Lloyd's Register of Shipping and Lloyd's of London Press to provide a full range of computer-based maritime information and consultancy services. Experienced staff in the shipping and computer industries will demonstrate on-line database services.

### MACGREGOR-NAVIRE

Booth No. 337

MacGregor-Navire (USA), Inc. (MGN) will exhibit graphics showing its participation in the U.S. Navy's RRF Program, its Linkspan concepts and causeway systems, slides showing cargo access equipment emphasizing the military utility of its equipment, and general examples of recently equipped U.S.-flag vessels.

### MAN B&W

Booth Nos. 429 & 430

MAN B&W Diesel, with the world's largest diesel engine program, will display the latest developments in diesel engine technology. Highlighting the exhibit will be the S26MC/MCE mini-bore two-stroke engine, generator set integrated charge air system and the flexible layout, and the 58/64 medium-speed fuel saver.

### MARCON

Booth No. 215

Marcon Engineering, Inc. of Bal-  
(continued)

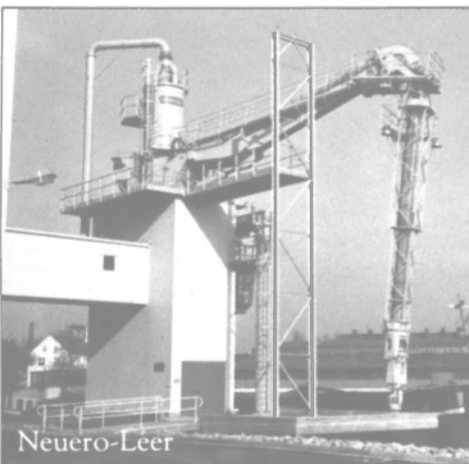


## The Market Leader for Radio Remote Control Systems, Radio Data Transmission Systems, and Logistic Information Systems



- Mobile Data Displays for the automatic control and guidance of a transport system with radio connection to a central computer system.
- Logistic Information Systems to improve the efficiency for all kinds of cargo and material handling.
- Positioning Systems for automatic driven cranes.

VISIT US AT SNAME  
BOOTH #924



Theimeg has more than 20 years experience in the development and manufacturing of radio remote control equipment. Theimeg radio remote control increases the efficiency of cranes and locomotives. It reduces labor costs. Theimeg radio remote control equipment is easy to use and highly reliable. Theimeg offers also the engineering and software support for factory automation projects. Theimeg offers a unique multi-use system operating at a single frequency for the remote control of several cranes or locomotives. Theimeg has already sold more than 10,000 units for the remote control of cranes, more than 600 units for locomotives and more than 300 radio data-transmission systems. Theimeg offers also radio-linked mobile data terminals for on-line operations with your host-computer and radio data-transmission systems, e.g., standardized measurement systems.

THEIMEG USA, INC.

P.O. Box 407 • Stowe, Vermont 05672 • Telephone (802) 253-7367 • Toll Free 1-800-THEIMEG

Circle 107 on Reader Service Card



ANOTHER POWERFUL IDEA:

# WE'RE USING WASTE HEAT TO MAKE THE OCEAN DRINKABLE.



Reliable Combustion Engineering waste heat recovery boilers are helping the Navy cut the cost of turning seawater into drinking water aboard the *Ticonderoga* (CG-47) class guided missile cruisers.

And that's not all our waste heat recovery boilers do. They generate high-quality saturated steam for ship's heating as well as steam for the galley, laundry and de-icing system.

Annual projected fuel savings for a CG-47 class ship is estimated at more than \$200,000.

(Based on three waste heat boilers per ship, operating an average of 5,000 hours a year, with a steam usage of 7,000 pounds per hour; fuel at \$20 per barrel.)

Achieving savings like these obviously requires high reliability. And our boilers have proven they can deliver. With over 80,000 accumulated operating hours aboard the *Ticonderoga*, *Yorktown*, *Vincennes*, and *Valley Forge* and at the NAVSSES test facility in Philadelphia, our equipment has operated without a single boiler-related failure.

What's more, the boilers are designed with maintenance in mind by incorporating ample access to the gas and water sides. This has contributed to the excellent operating record.

Powerful ideas like our waste heat recovery boilers are typical of Combustion Engineering's commitment to the U.S. Navy.

For more information, write:  
Combustion Engineering, Inc.  
Dept. CEP1-MR  
PO. Box 500  
Windsor, CT 06095-6052

**COMBUSTION ENGINEERING**

Circle 206 on Reader Service Card



## 94th SNAME Annual Meeting

### —A Preview

timore supplies a full range of non-ferrous piping products including aluminum-brass, copper-nickel 90/10 and 70/30, brass, and copper in pipes, tubes and fittings, as well as a range of Viking-Johnson pipe couplings. The company will also show a range of fiberglass piping products and deck gratings for ma-

rine applications, including the ability to install all with its U.K. riding crews.

## MARKETEC

Booth Nos. 207/209/211

Marketec, Inc. of Chatham, N.J., will exhibit Wynstruments Limited's full line of bridge window wipers, the Multilapper fuel nozzle valve reconditioning tool kit, Golten Marine's in-place machining and

diesel repairs, Nelson-Winslow fuel oil filter equipment, Sauer Poppe air compressors, Fram-Quantek ballast water monitors, and Turbo-Technik ship-repair-yard services.

## MARINE & INDUSTRIAL HYDRAULICS

Booth No. 100

## MARINE INDUSTRIES

Booth No. 638

Marine Industries Limited of Sor-el, Quebec, offers 50 years of experience in shipbuilding (military, research, products tankers, cargo, ferries, floating docks), ship repair, conversion, and major refits. The company also provides project management and turnkey projects.

## MICROSOURCE

Booth No. 423

Microsource CAD/CAM, with headquarters in Woburn, Mass., and district offices in Trevese, Pa., Parsippany, N.J., and New York City, has installed more than 200 Computervision personal designer systems in the Northeast. The firm, said to be the largest turnkey distributor of micro-based CAD/CAM systems in the U.S., provides professional pre- and post-sales service and support, custom application software development, and full hardware and software maintenance programs.

## MINDECO

Booth No. 307

Mindeco Corporation of Ocean-side, N.Y., is a large and diverse stocking distributor of fittings, flanges, and valves for the marine industry. The company carries an inventory of bronze silver-brazing, Class 200 cupro-nickel butt weld, and high-pressure socket weld fittings and flanges, along with bronze union end and flanged Monel-trimmed valves. Forging and machining facilities are available for special requirements.

## MMS

Booth No. 310

Marine Management Systems, Inc. of Stamford, Conn., will present its ship management application systems, designed for use on the IBM Personal Computers, for both shipboard and shoreside use. Available for demonstration will be systems for spare parts management, planned maintenance, cargo loading, and fleet payroll. Also represented will be the Marine Management Centre, MMS' London-based joint venture with BP Shipping, as well as Sperry Marine, with whom MMS has joined in a marketing agreement to offer MMS software on Sperry's new marine PC.

(continued)

# MAXIM<sup>®</sup>



## DESALINATORS FOR THE ENTIRE MARINE AND OFFSHORE INDUSTRY.

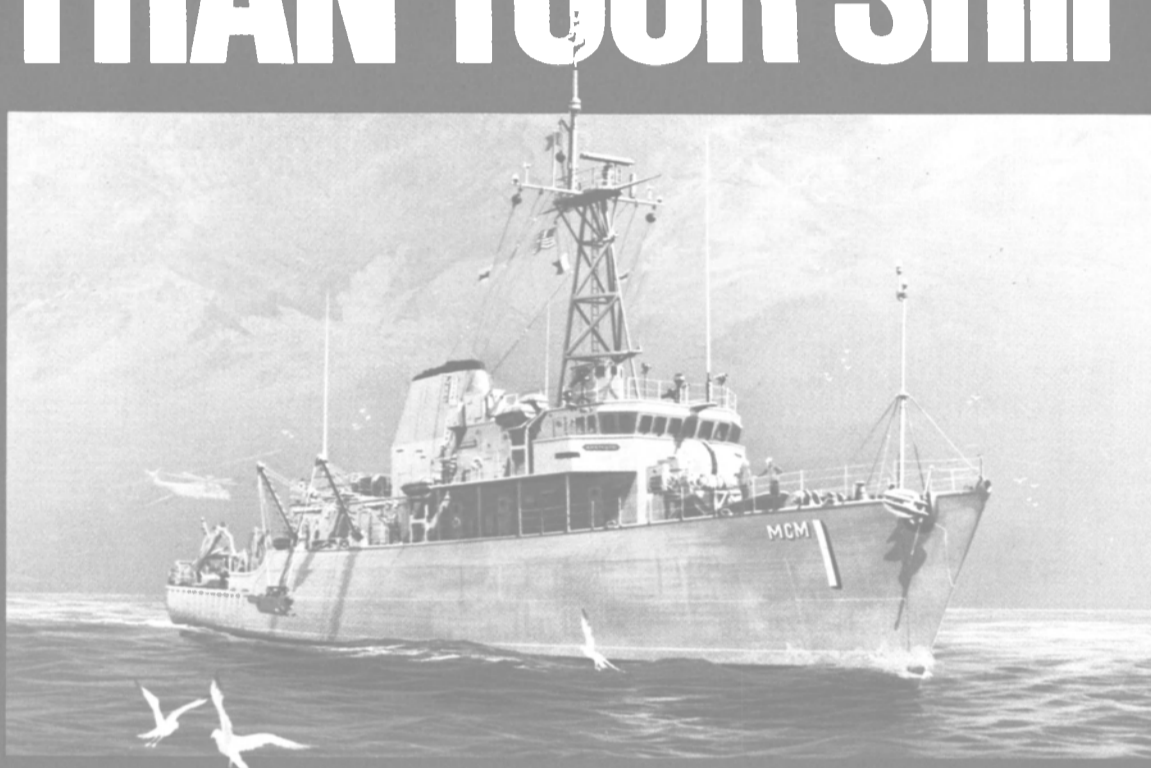
Few names have ever been better known for quality and dependability than MAXIM. A standard that has stood for more than 50 years. Today Maxim furnishes desalinators to provide fresh water for workboats, offshore platforms, drilling rigs, tankers, submarines and large vessels of all types . . . units designed for optimum space savings and economic operation. Choose from a

wide range of standard designs or let Maxim design a unit to meet your specific requirements. Also available are reliable Maxim heat exchangers and deaerators. Become a part of a legend . . . insist on Maxim, the first name in reliability and service. Maxim backs it up! Riley-Beard, Inc., PO. Box 31115, Shreveport, LA 71130-1115, Ph. (318) 865-6351, Telex 50-7472.

Nuclear submarine equipped with Maxim desalinators  
General Dynamics Photo

**RILEY-BEARD, INC.**

# THERE'S ONLY ONE THING THAT WORKS HARDER THAN YOUR SHIP



There's one name in the Marine Industry you can definitely count on. Action Threaded Products.

At Action, you'll find an extremely service-oriented group of marine specialists with over 30,000 stainless steel and non-corrosive fasteners **IN STOCK!**

And not just the easy stuff either! We inventory all the tougher, hard-to-find items you need...long bolts, lag screws and many many more. While others talk, Action delivers. With fully computerized facilities in Illinois, Georgia, Minnesota and Wisconsin, you won't experience all that annoying "down" time while you wait

for a delivery. In most instances, we can fill and ship your order immediately.

Stainless Steel, Brass, Silicon Bronze, Nickel-Copper...we have them all! We can also custom manufacture our quality fasteners to suit your every need. And, of course, our Quality Assurance Procedures are in accordance with MIL-I-45208A.

So, for further information on a particular need, call us at (312) 599-9300 or fax us your drawings at (312) 735-4637. You'll wonder why you waited so long to take Action!

## OUR FASTENERS

E X C E L L E N C E   I N   A C T I O N  
**ACTION THREADED PRODUCTS, INC.**

7440 West 100th Place, Bridgeview, Illinois 60455

See us at Booth #202 at the International Maritime Exposition

Circle 341 on Reader Service Card



## 94th SNAME Annual Meeting

—A Preview

### J. ARTHUR MOORE

Booth Nos. 405/407

J. Arthur Moore Company, Inc. of South Hackensack, N.J., will display the following: Babcock Bristol

#OTM-18 second generation tanker deballasting oil content monitoring systems, USCG and UK/DOT certified and approved to IMO-A-586-14 requirements; Babcock Bristol #OTM bilge alarm, USCG and UK/DOT certified and approved to IMO-A-393-X; and Keystone International butterfly valves and actuators, approved by USCG and USN for cargo/ballast/ventilation/COW/IGS applications.

### MTU-NA

Booth No. 818

MTU of North America will present technical information on its 396 model 03 and 04 series engines—the same type that powered the Virgin Atlantic Challenger II on its record trans-Atlantic run; the display will show a video account of this event. The stand will also have a model of

a KaMeWa water jet used on high-speed ferries.

### MURDOCK

Booth Nos. F-6/F-7

Murdock Engineering Company of Irving, Texas, designs and manufactures RISICs (Rubber Insert Sound Isolation Couplings) used on all new-construction submarines. The company will also display custom-designed rubber springs that can be used in wireless and mooring system equipment to eliminate any shock loading in the ropes or lines.

### NAV/COM

Booth No. 529

NAV/COM, Inc. of Deer Park, N.Y., a wholly owned subsidiary of Magnavox Advanced Products & Systems Company of Torrance, Calif., will display a wide range of advanced marine electronics equipment. Among the featured products will be the recently introduced Magnavox MX 4400 GPS receiver, a highly accurate navigation instrument that uses signals from the U.S. government's satellite-based Global Positioning System. Also featured will be the Magnavox MX2400 sat-com terminal that provides instant, clear communications between ship and shore via the INMARSAT satellite network.

### NELSON ELECTRIC

Booth No. 104

Nelson Electric of Tulsa, Okla., a unit of General Signal, will display its Multi-Cable Transit® and Multi-Plugs™, mechanical firestops for cable penetrations in bulkheads and decks. When exposed to fire, Tecron™ elastomer modules expand, completely sealing the areas around the penetration, blocking the passage of fire, toxic fumes, and gases.

### NEWPORT NEWS

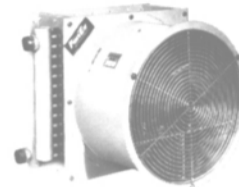
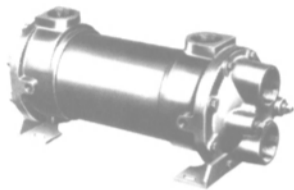
Booth No. 204

The Newport News Shipbuilding booth will highlight the company's 100 years of designing, constructing, overhauling, repairing, converting, retrofitting, and jumboizing a wide variety of ships for the U.S. Navy and commercial customers. Also featured will be video tape displays of the company's centennial anniversary, and the IMSATT Interactive Videodisc Expert System being marketed for training and information delivery applications.

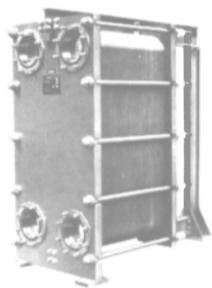
### NEW WAVE SYSTEMS

Booth No. 827

New Wave Systems, Inc. of Jamestown, R.I., will demonstrate



# WE JUST EXCHANGED THE FIRST NAME IN HEAT TRANSFER.



For over a half a century we've solved more heat transfer problems than anyone. If you know shell-and-tube, air-cooled, or plate-and-frame heat exchangers, you know us as AMERICAN-STANDARD.

We're still here, with the same products, experience and special insight into problem-solving. All we've done is exchange our first name.



STILL THE COMPLETE HEAT EXCHANGER COMPANY.

Call 1-800-447-7700 (In NY State, 1-716-897-2800). Or write us in Buffalo, NY 14240.

Circle 231 on Reader Service Card

state-of-the-art computer-aided engineering, design, and production software for the marine industry. The products include a microcomputer-based set of integrated programs, using interactive graphics, that assist naval architects with hull surface definition, fairing, lofting, and numerous engineering analyses.

### NORSHIPCO

Booth Nos. 513/515

Norfolk Shipbuilding and Drydock Corporation in Virginia offers the marine industry a complete range of services, including diesel components, temporary crews, insurance services, financial services, and land-based industrial repair, all of which will be included in the exhibit.

### NUGENT

Booth No. 806

Wm. W. Nugent & Co. of Skokie, Ill., manufactures an oil filter that cleans itself continuously and automatically without shutdown. It cleans itself by backwashing; there are no scraper blades to abrade the media. The backwash mechanism is driven by oil system pressure; no external power source or pneumatic system is required. There are no elements to change, elements to store, or baskets to clean.

### OMNITHRUSTER

Booth No. 210

Omnithruster Inc. of Santa Fe Springs, Calif., designs and manufactures advanced-technology waterjet thrusters providing slow-speed propulsion, 360-degree maneuvering, position-keeping, and ice management wherever critical ship-handling and auxiliary propulsion are needed. Thrusters of up to 3,000 hp may be installed in combinations for any horsepower, with AC/DC electric, hydraulic, or diesel drives. Other products include control systems with automatic heading and dynamic positioning; commercial low-noise and military tactical thrusters where high shock resistance is required; and low magnetic units built for mine warfare.

### PHILADELPHIA RESINS

Booth No. 317

ITW Philadelphia Resins Corporation of Montgomeryville, Pa., leaders in innovative technology with resin products, will feature the numerous MIL Spec adhesives, coatings, and chocking compounds available worldwide. With more than 70 million horsepower of diesel engines mounted on Chockfast®, shipowners rely on the company's product to maintain alignment. New materials to be featured will be

the Super Repair Products line of high-performance compounds.

### PORT OF PORTLAND

Booth Nos. 909/911

Portland Ship Repair Yard is a full-service facility located on the Columbia River in Portland, Ore.,

gateway to the Pacific Rim. Three major contractors—Dillingham Ship Repair, Lockport Marine Company, and Northwest Marine Iron Works—perform the work at the yard, which is maintained by the Port of Portland. These companies, working with some of the most modern facilities in the world, are capable of handling jobs on all types of Navy and Coast Guard ships, oil

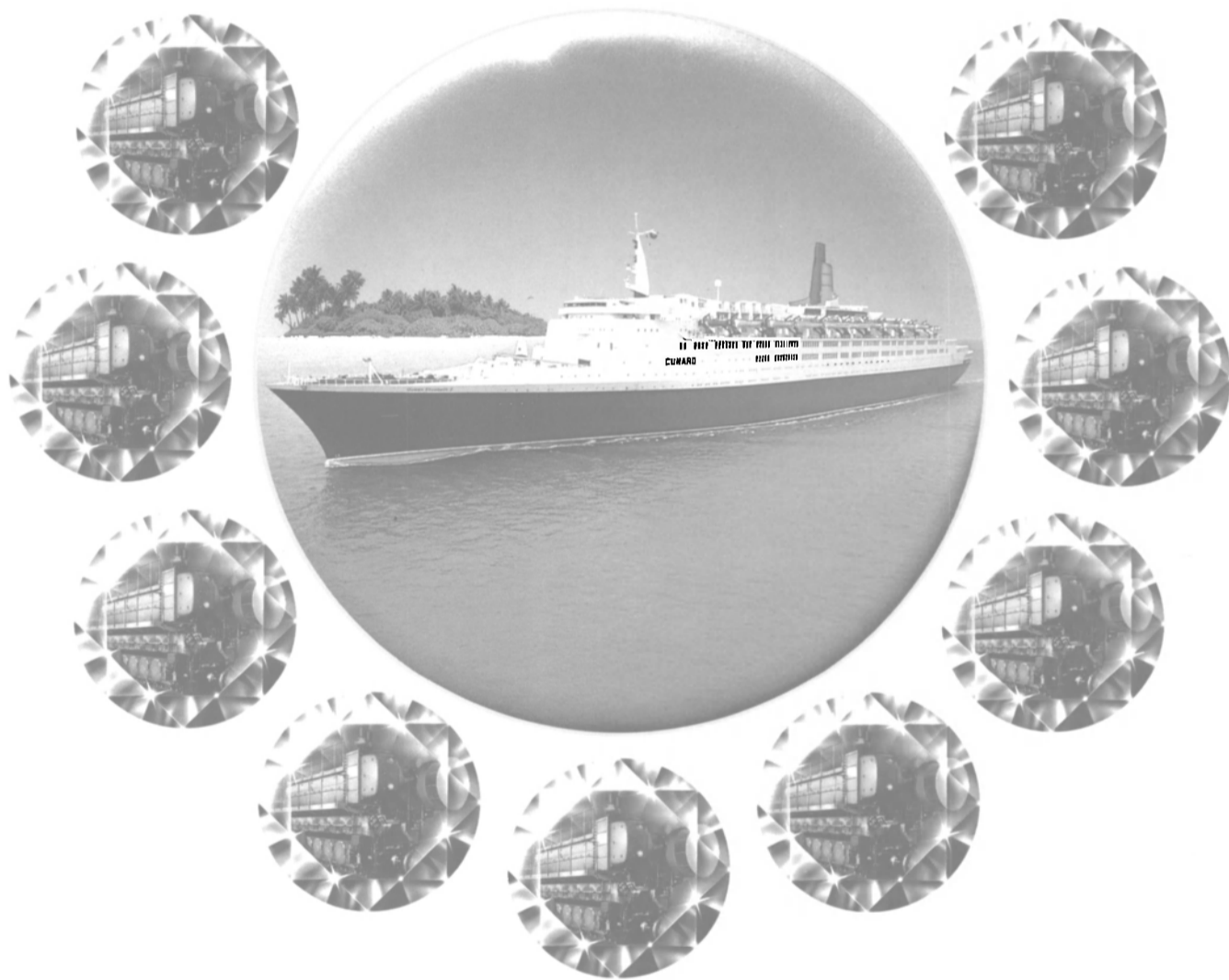
tankers, cruise liners, and heavy industrial projects.

### RAYTHEON

Booth No. 824

Raytheon Marine Company of (continued)

# The very best for a Queen



Maximum economy and optimal reliability are the two major requirements stipulated for the new propulsion plant on board that most famous of ocean-going hotels, the "Queen Elizabeth 2". After carefully comparing various propulsion concepts, the

Cunard Line shipping company opted for M A N B & W's proposal based on nine 9L 58/64 four-stroke Diesel engines. Once installed, these engines will develop an aggregate 130,000 HP and will provide this noble vessel with the propulsion power required

for on-schedule Atlantic crossings and during leisurely cruises. A heavy fuel oil consumption rate of just 123 g/HPH and the advanced engine design based on a refined maintenance concept are factors which guarantee both economy and reliability.

### Worldwide Service

M A N B & W Diesel GmbH  
Stadtbachstrasse 1  
D-8900 Augsburg  
Cables: manbw augsburg  
Telephone: (0821) 3221  
Telex: 53796-0 man d



FS 55 e

Circle 34C on Reader Service Card



## 94th SNAME Annual Meeting

### —A Preview

Manchester, N.H., will make a major introduction of its new series of high seas rasterscan radars. In addition, two new JRC 12- and 16-inch high seas radars will be introduced. Also seen for the first time will be the Yokogawa Hokushin gyrocom-

passes, EM speed logs, and adaptive autopilots available from Raytheon under a comprehensive distribution agreement announced recently. The new Hokushin Uni-Adapt Series of adaptive autopilots interfaces with existing ship steering systems to automatically select parameters of speed, trim, load, and weather conditions for optimum rudder control.

### RILEY-BEARD

Booth No. 108

Riley-Beard, Inc. of Shreveport, La., will exhibit its Maxim® silencers, heat recovery equipment, evaporators, and heat exchanger products. Emphasis will be on the new HJ and TCF standard evaporators. Information will be available on the company's total in-plant capability relating to fabrication of ASME Code type pressure vessels and other fabricated structures.

### ROCKMENT

Booth No. 931

Rockment, Inc. of Houston, a member of the Rockwool International Group, is a manufacturer of sophisticated and cost-effective joiner/accommodations aesthetically designed to meet high thermal, noise, and fire requirements (USCG B-15/A-60 and SOLAS 74) consisting of bulkheads, ceilings, doors, window casements, A-60 floor units, vent louvres, and light fixtures.

### ROLAND MARINE

Booth No. 833

Roland Marine Inc. of New York City, manufacturers' representative for marine and industrial equipment, will exhibit the following products: Ross Industries (formerly HDW) "Simplex" sterntube seals and components, oily water separators, and complete shipyard services; AEG automation system, steering gear, shaft generator, cable transit, sealing system, and electric drives; Zoellner sound signal equipment, engine dynamometer; Norclean marine vacuum system; Hechelmann clear view screens; and Moelven marine cranes.

### SAAB TANK CONTROL

Booth No. 212

Saab Tank Control of Secaucus, N.J., will exhibit the following equipment: Saab TankRadar cargo/ballast tank monitoring and control system; Gunclean fixed tank-cleaning machines; EMV-Marpoil ballast at water oil content monitor; and Ocean Motion Company's ship loading computer for stress monitoring.

### SALTECH

Booth No. 330

Saltech Consultants AB of Stockholm, Sweden, will be demonstrating the "MASP" computerized maintenance and spare parts inventory system. Developed over the past 20 years by experienced marine personnel, MASP is now in more than 150 installations worldwide. Saltech will also offer information on its new building and project management design and engineering services.

### SAMSUNG

Booth No. 318

Samsung Shipbuilding & Heavy Industries Company in Korea has developed new concepts for the most economical containerships. The new designs include all types with capacity ranging from 1,200 to 3,600 TEU. During the past six years, the Koje Shipyard has delivered four 34,000-dwt containerships, one 41,300 container/bulk carrier, and one 41,380-dwt multi- (continued)

# Only Westfalia's On-Demand Purifying System Removes All the Dirt and Water from your 1010 fuel.

Whether your fuel oil is heavier or lighter than water, only Westfalia's two-stage Unitrol/Secutrol system assures maximum purity even under widely varying feed conditions. Here's why.

### On-demand vs timer-controlled de-sludging.

Other oil purification systems are timer-controlled, which means they de-sludge only at pre-set intervals. If heavy seas stir-up the "muck" in your fuel tanks, the intervals may be too far apart. Result: dirt gets into your day tank and fuel lines, causing disastrous engine wear...In the Westfalia system, a unique sensor continuously monitors de-sludging intervals, discharging dirt and water only when the sediment-holding compartment is full. So there's no chance for dirt to get into your fuel because of too few de-sludgings — or fuel wastage from too-frequent de-sludgings.

And either stage can be operated independently, thus adding even more flexibility.

### No water in fuel lines.

With Westfalia's unique design, there's no way water can enter the clean fuel line. With other systems, this is a distinct possibility.

### Reliable purification.

No matter how wide the variations in density or feed characteristics, you get the most efficient, reliable purification. Automatically, with no need for gravity disc changes.

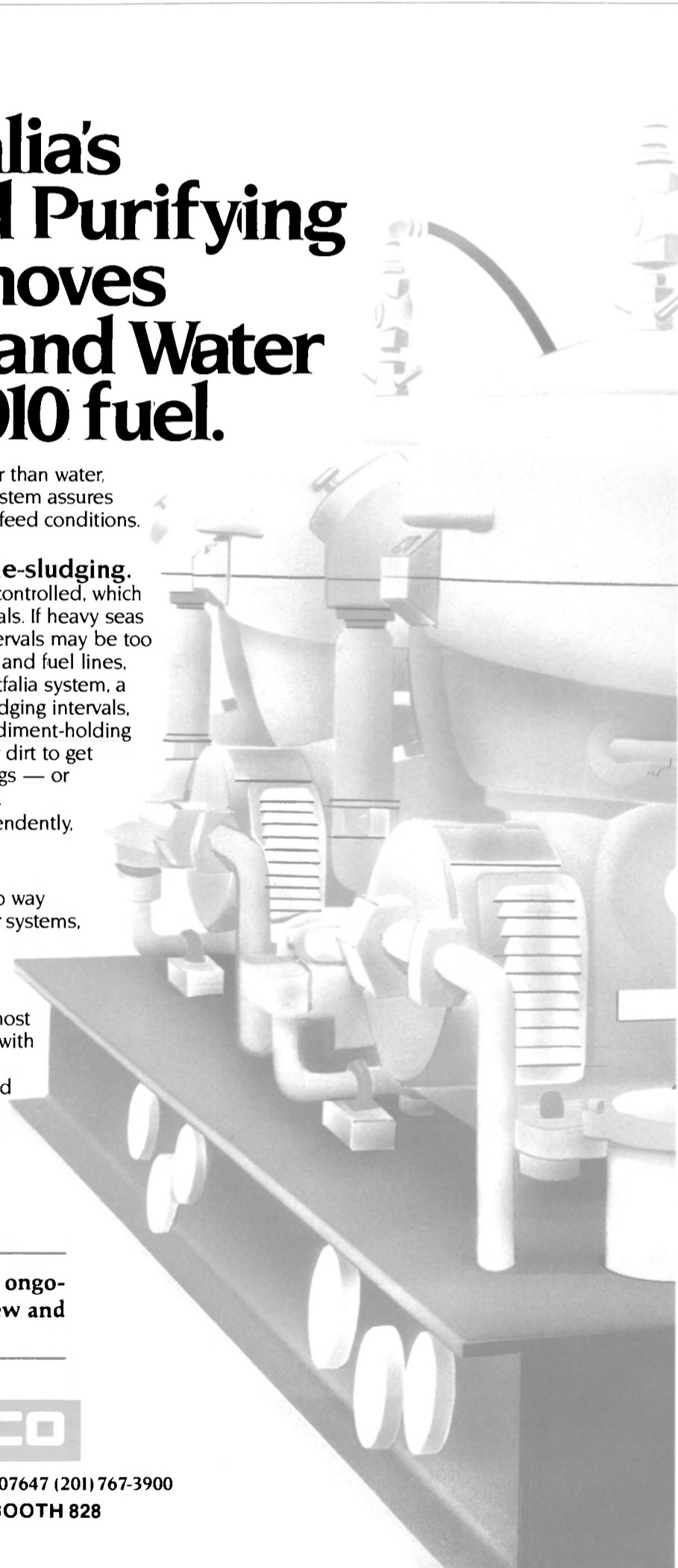
For maximum reliability we've substituted simplicity for complex electronics and intricate circuitry. Thus Westfalia purifiers are more dependable and much less likely to break down than other separators. Contact Centrico for the Westfalia system you need.

Westfalia is proud to be part of the ongoing construction program of the new and growing U.S. Navy.



Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647 (201) 767-3900

SEE US AT THE SNAME SHOW, BOOTH 828



← Circle 131 on Reader Service Card

# SIEMENS

## Now...convert at sea!

# UMS...for increased efficiency and lower operating costs.

In today's highly competitive shipping industry, remaining competitive is the key to remaining afloat. Ship owners everywhere face the problems of increasing their vessels' efficiency and lowering overall operating costs.

Siemens has the solution! Now you can meet the demands for more efficient operation, and stay competitive...by upgrading your ship with automated systems for unattended machinery operation (UMS) from Siemens.

Our cost-effective UMS systems will convert your steam or diesel-powered vessel to operate with the engine room unattended...safely, efficiently. You'll lower your overall operating costs as never before, through:

- Reduced crew requirements
- Highly efficient machinery operation
- Increased fuel efficiency



In fact, UMS systems from Siemens are so efficient, pay-back for your investment is often as short as two years!

When it comes to UMS upgrades, Siemens has the experience, the advanced technologies, and the skilled personnel to achieve a smooth, problem-free turnkey conversion...while you're at sea. Without a costly lay up.

Siemens 'does it all', including inspection, planning, obtaining

classification approval, equipment supply and installation...everything! And best of all, we do it while you're under way, with your vessel working for you.

For UMS...and a wide range of other electrical and electronic marine services, Siemens is the name to remember. With branch offices and service facilities in more than 100 ports in 53 countries, we're ready to serve your needs in the Siemens tradition of excellence.

For further information, contact Siemens Energy and Automation, Inc. 635 Montrose Avenue South Plainfield, NJ 07080 (201) 756-8660.

Siemens AG, Marine Department  
Lindenplatz 2, Siemenshaus  
2000 Hamburg 1  
Tel: (40) 282-2032  
Tx: 21558452

Circle 210 on Reader Service Card

## Siemens... supplier to the marine industry for over a century.



## 94th SNAME Annual Meeting

— A Preview

purpose container/bulk carrier. The Samsung-designed asymmetrical stern of the 34,000-tonners is said to save about eight percent in fuel costs compared with a conventional symmetrical stern.

## SECURIPLEX

Booth No. 642

Securiplex Systems, Inc. of Pointe Claire, Quebec, engineers and manufactures the microprocessor-based Firescope® damage surveillance and control system integrated with extinguishant systems. Combining state-of-the-art with an established engineering reputation,

Securiplex meets the vital needs of marine, offshore, and naval markets. The company's defense projects integrate such damage control functions as fire detection and suppression, fire main and ventilation control, monitoring and control of fuel and ballast tank levels, and flood control.

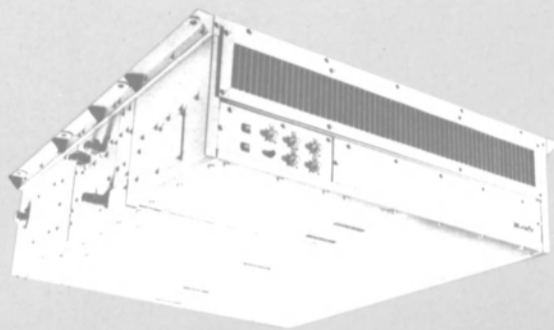
## SIEMENS

Booth Nos. 700/702/704

Siemens Energy & Automation, Inc. of South Plainfield, N.J., will exhibit the following: the Simos 41, a microprocessor-controlled alarm and monitoring system for large and complex functions. This system can be delivered with redundancies for increased performance safety, and with multi-terminal operation. The Sigos 41, a color graphics system that allows a process to be started and its progress monitored. The Simos 32, a microprocessor-controlled alarm and monitoring system of modular construction for smaller systems with up to 400 inputs. It includes data terminals, and event and data logger.

# MARLO NAVY FAN COIL UNIT

SEE THE MARLO NAVY FAN COIL AT BOOTH F6,F7



INTRODUCING A NEW GENERATION FAN COIL UNIT IN A COMPACT LIGHT WEIGHT DESIGN FOR SHIPBOARD APPLICATIONS.

- DESIGNED FOR COOLING AND HEATING
- QUALIFIED TO MIL-S-901 AND MIL-STD-167
- QUIET, TROUBLE FREE OPERATION
- SIZES FROM 5800 BTUH TO 73,000 BTUH
- TWO SPEED MOTORS FOR UP TO 1" ESP
- COMPLETE INTERNAL CONTROL PACKAGE
- OVERHEAD OR BULKHEAD MOUNTING
- COMPLETE SPECIFICATIONS AND SELECTION DATA
- COMMERCIAL MARINE CONSTRUCTION AVAILABLE

## MARLO COIL®

NUCLEAR COOLING, INC.

P.O. BOX 171  
HIGH RIDGE, MO 63049

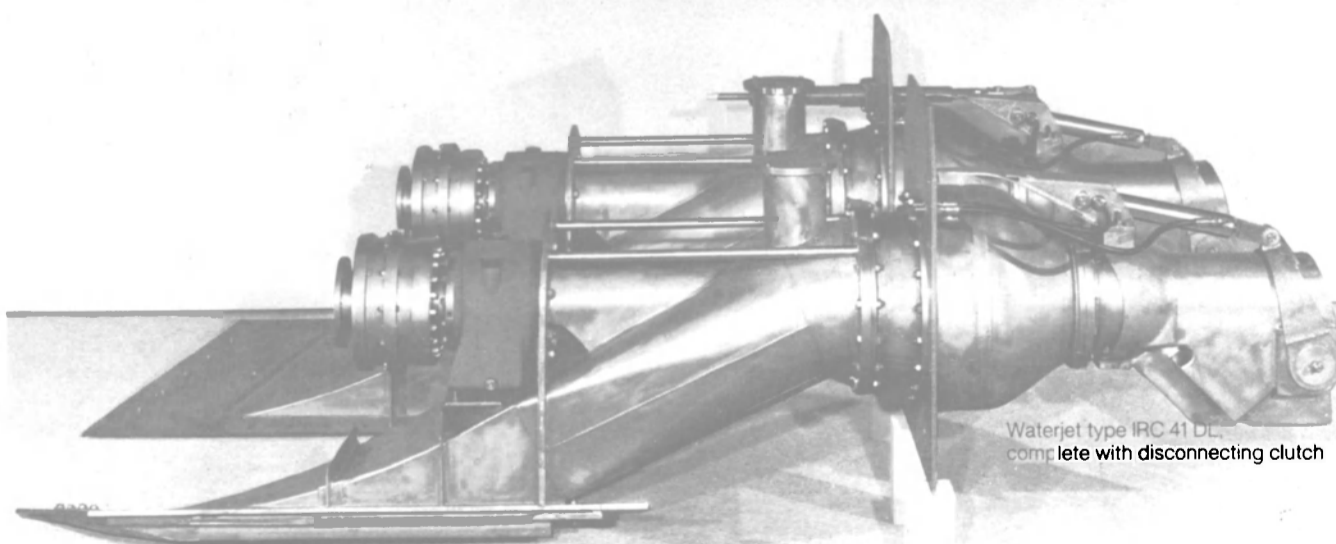
FOR MORE INFORMATION ON MARLO PRODUCTS

CALL  
TOLL  
FREE **1-800-325-9596**

Circle 291 on Reader Service Card

## Waterjet Propulsion Systems

from 300 to 25,000 kW



Waterjet type IRC 41 DL  
complete with disconnecting clutch

# RIVA CALZONI

150 years of experience in hydraulics

Riva Calzoni S.p.A. - Via Stendhal, 34 - 20144 MILAN (Italy) - tel. 2/479151 - telex 332292 RIVATI - telefax 2/425749

Circle 254 on Reader Service Card

## SPERRY

Booth Nos. 238-39

Sperry's Aerospace & Marine Group of Charlottesville, Va., will exhibit a full range of gyropilots, gyrocompasses, doppler speed logs, ship stabilizer systems, and steering systems. A major manufacturer of marine navigation and control systems, and a leader in radar and collision-avoidance systems, Sperry recently announced the addition of a range of satellite communications systems and a powerful personal computer. The company maintains a worldwide service organization, with more than 250 locations staffed by fully trained personnel to insure the maximum availability of all Sperry systems.

## STOW MANUFACTURING

Booth No. 424

Stow Manufacturing Company of Binghamton, N.Y., is one of the country's largest suppliers of manual remote valve-actuating systems; its products are recognized as the industry standard. The Stow product line is made up of all components required to solve any manual valve-operating configuration, including handwheels, deck stands, deck boxes, U-joints, flexible shaft, gear boxes, shaft hangers, and valve couplings. The company also provides engineering assistance, and special materials are available.

## TATE ANDALE

Booth No. 413

Tate Andale, Inc. of Baltimore, a division of Tate Industries, will display its line of seawater, lube oil, and fuel oil strainers—simplex, duplex, cone, Y-type, commercial and MIL-spec strainers; manually operated and power-operated simples and duplex manifold valves, P.V. valves; three-way, four-way, and double-circuit valves; hull and drainage fittings; special marine machining and fabricating capabilities; and heat exchangers.

## TELEFLEX

Booth No. 324

The Remote Mechanical Valve

Maritime Reporter/Engineering News



Actuator System manufactured by Teleflex Incorporated of King of Prussia, Pa., is a flexible cable-driven mechanical valve actuation device that eliminates the need for critical alignment in controlling remote valves. Sealed and permanently lubricated, this system uses tension-tension helix cable drive to transmit valve control commands over long distances and multiple bend routings.

## THOMSON-GORDON

Booth Nos. 404/406

Thomson-Gordon Limited of Toronto, Canada, will show for the first time ever a new closed-loop, water-based lubrication system for marine propeller shafts. The company will also display its full range of Thordon® marine bearings for propeller shafts and rudder bearings on all types and classes of ships. From Compac to Staxl, from XL to Composite, Thordon synthetic-

polymer-alloy marine bearings have provided consistent, cost-effective trouble-free performance for owners and operators. There is a Thord-Lube system and a Thordon marine bearing to meet any requirement.

## TIMBERLAND

Booth No. 626

Timberland Equipment Limited of Woodstock, Ontario, designs and manufactures standard and custom hoists, winches, and related accessories for dredges, barges, and rigs. Also, a complete line of anchor and mooring winches, electric, electro-hydraulic, and diesel powered, as well as standard and custom-built fairleads, deck sheaves and blocks, stiffleg and shearleg derricks, and oceanographic winches.

## TIMSCO

Booth No. 123

Timco, Inc. of Mobile, Ala., will display software for use in IBM-PC and compatible computers. Primary

systems deal with spare parts inventory control and maintenance management. The inventory system displays current status and historical usage data, and includes requisition and purchase order processing capabilities. The maintenance management system includes scheduling and recording capabilities, and a regulatory body inspection planning and tracking system.

## TTT

Booth No. 219

Total Transportation Systems Incorporated will focus heavily on its Kenmark Industries product line, which includes hydraulic jacking and skidding equipment and the unique Kenmark shiplift. TTS is currently involved in producing a skidding system for loadout and launch of the world's largest fixed jacket platform that is to be installed in the Gulf of Mexico. In addition, the company recently commissioned a similar system for Hyundai Heavy Industries in Ulsan, Korea.

## WAGNER MARINE

Booth No. 640

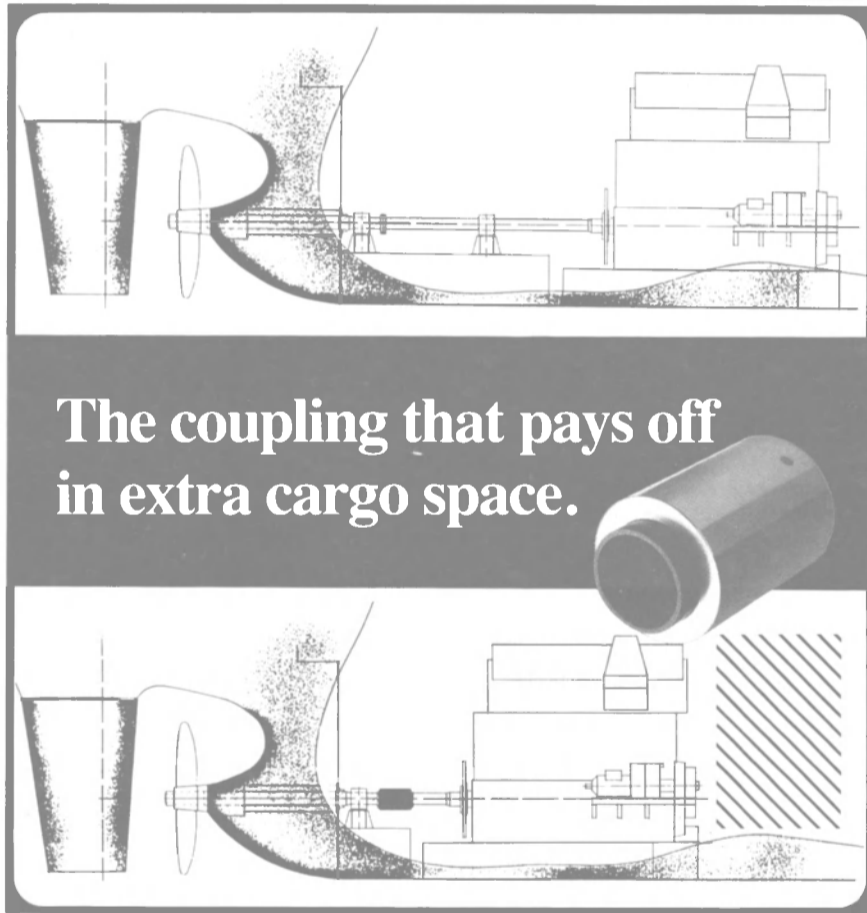
Wagner Marine (USA) Inc. is the U.S. distributor for Wagner Engineering, Ltd. of North Vancouver, B.C., a leading producer of hydraulic steering systems, electronic control systems, autopilots, rudder angle indicators, and related accessories. Its products are sold in more than 60 countries.

## WARTSILA DIESEL

Booth Nos. 720/722/724

Wartsila Diesel of Finland will exhibit its Wartsila Vasa 32 and Vasa 22 engine types with an output range from 760 to 10,026 bhp at 720-1,200 rpm. Wartsila's latest U.S. cruising and offshore reference will also be presented at the show. With production facilities in Finland, Sweden, Norway, France, and Singapore, and licensees in Korea, Indonesia, and Brazil, Wartsila Die-

(continued)



The coupling that pays off in extra cargo space.

Propulsion shafts connected by conventional flange couplings must be installed via the deck. They result in space unusable for cargo storage — and require that the engine itself be moved farther forward than the designer's ideal location.

The OK coupling changes all that. Since it needs no forged flanges but instead grips the connected shaft in a powerful interference fit, it permits propeller shaft replacement via the stern tube. The shaft itself can be kept short, and the engine moved further aft for

maximum cargo room. The economics are obvious.

More than 13,000 OK couplings are in use aboard ships worldwide.

Get the full story on the last word in propulsion shaft coupling: OK from SKF Steel. Contact SKF Steel Couplings Division, 22 Waterville Road, P.O. Box 745, Avon, CT 06001, U.S.A. — (203) 677-4423.

**SKF Steel**

We Build Innovation.

Circle 130 on Reader Service Card

# Goltens

## Comprehensive Machinery Services

**GOLTENS.** Dedicated to the rapid reduction of costly downtime for over 40 years.

To serve you better, we are constantly improving our machinery repair and machining techniques.

Goltens' patented equipment has made us the leader for in-place shaft reconditioning. Call us for crankshaft, main journal, crankpin reconditioning; grinding, honing, lapping, polishing of shafting and thrust collars.

We have the experience, tools and techniques to repair main and auxiliary engines, overhaul valves, pumps and injection equipment.

Goltens performs repair service anywhere in the world, 24 hours a day. Our staff of engineers stands ready to fly any place in the world to keep your downtime to a minimum.

Fast, innovative, complete machinery services. That's Goltens...your single, worldwide source for: centrifugal rebabbiting of bearings • line boring • correction of misalignment • repair of main & auxiliary engines • retubing of heat exchangers • in-place machining • piston reconditioning • fan shaft journal refinishing • pump housing and valve seat reconditioning.

IN-PLACE  
OR IN-SHOP.

FAST.

INNOVATIVE.

COMPLETE.

Serving you best  
for over 40 years



SEE US AT SNAME BOOTH #207.

**Goltens**

WORLDWIDE HEADQUARTERS:

160 Van Brunt St., Brooklyn, NY 11231

Phone: (718) 855-7200 Telex: 22-2916 Cable: GOLTENS

OTHER LOCATIONS:

Miami, FL, Wilmington, CA, Fairhaven, MA, Oslo, Rotterdam, Singapore, Hong Kong

Circle 151 on Reader Service Card



## 94th SNAME Annual Meeting

—A Preview

Houston, Marrero (New Orleans) and Miami.

### WAUKESHA BEARINGS

Booth No. 101

sel is one of the world's leading manufacturers of medium-speed diesel engines. In the U.S., Wartsila is represented by Wartsila Diesel, Inc., with offices in New York,

Waukesha Bearings Corporation of Waukesha, Wisc., a Dover Industries company, will exhibit a shock qualified, disk-lubricated lineshaft bearing and the latest in IMO-

approved pres/vac products including a high-velocity PV valve type HS-M, cargo ejector, purge vent cover, and information on a portable turbo blower fan for gas-freeing non-inerted tankers and barges.

### WILSON MACHINE

Booth No. 636

Wilson Machine Company Ltd. of

LaSalle, Quebec, established in 1913, is a leading Canadian manufacturer of gears for civilian and military marine applications, deck machinery, and radar drives.

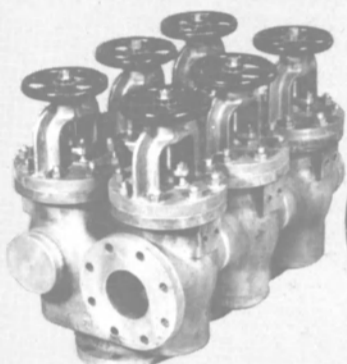
### WRIGHT-AUSTIN

Booth No. 314

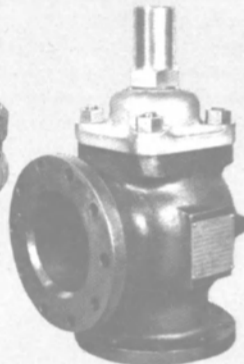
The Wright-Austin Company of Detroit will exhibit gas/liquid separation equipment, including its type "T" and "31L" gas/liquid separators and draining equipment. These separators were used to separate condensate from saturated steam systems or condensate from compressed air systems.

The company's separators are used on the catapult systems of all U.S. Navy aircraft carriers, and on the bleed air systems of all gas-turbine-powered guided-missile destroyers and cruisers, including the DDG-51 under construction at Bath Iron Works. The display will also include the company's 500 Series bucket traps for draining its gas/liquid separators.

# Not Just Strainers...



**Modular Manifold Valves**  
Available in simplex and duplex. Manual and power operated. Welded or flanged assembly in cast steel, stainless steel and bronze.



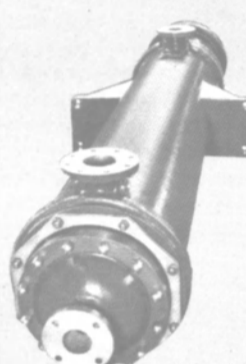
**Pressure Control Valves**  
For maintaining constant pressure on varying flow. Operation is automatic. These versatile valves can be used for pressure control, pressure reduction or as spill valves.



**Multi-Circuit & Special Valves**  
Plug-type valves, including Duplex Threeway, Fourway and Threeway for quickly diverting flow with no interruptions.



**Actuators**  
Valvmatic® Actuators provide quick and easy retrofit of in-service manual valves without removing them from the line. Electric, pneumatic or pneumatic/electric.



**Specialty Heat Exchangers**  
For pressures from vacuum to 5000 psig (35 MPa); temperatures from 0°F or less to 600°F or more (-17.8° to 315.6°C).

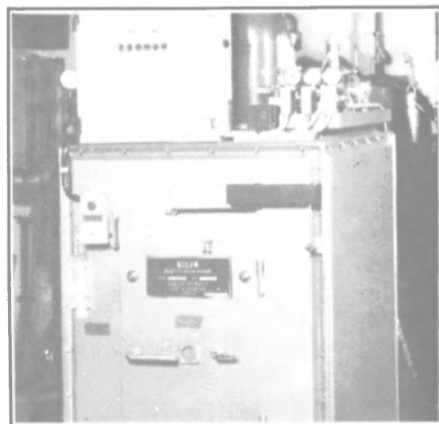
Manufacturers of  
Tate Temco,  
Andale,  
Desomatic,  
"Elliott" Strainers.

## Tate Andale, Inc. Tate INDUSTRIES

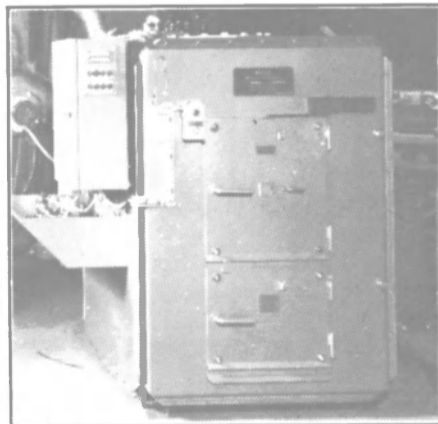
1941 Lansdowne Road, Baltimore, Maryland 21227 301-247-8700 Telex 8-7977

Circle 339 on Reader Service Card

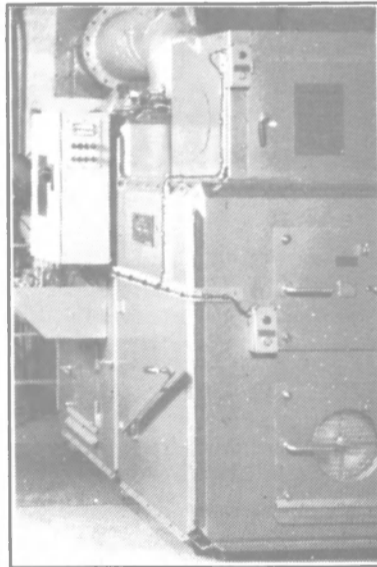
## Golar Marine Incinerators



**OG 100/120** Most compact marine incinerator on the world market. OG 100 is delivered as a self contained unit in a specially designed shelter for installation on deck. Suitable for small ships.



**OG (S) 200/400** Compact and efficient for disposal of solid waste and liquid waste (sludge) simultaneously. OG-models are batch-fed. OGS-models are equipped with sluice for continuous operation.



**GS-500** The incinerator for the heavy load. Burns solid and liquid waste. Continuous-feeding. Several options available to suit each customer's need. Suitable for passenger ships, flotel, drilling rigs and navy vessels.



### GOLAR METAL AS

P. O. Box 70 — 4901 Tvedestrand, Norway  
Phone (041) 62 600  
Telex 21 275 — Telefax (041) 62 452

Circle 23C on Reader Service Card

### ZURN INDUSTRIES

Booth Nos. 519-20

The Mechanical Drives Division of Zurn Industries, Inc., Pittsburgh, is a leading designer and manufacturer of environmental quality control, energy conversion systems, and leisure products. The division offers the Amerigear and Ameriflex flexible couplings, Zurn/Voith universal joints, resilient couplings for sound isolation, and synchronizing clutch couplings, all with a smooth, dependable mechanical power transmission that stands up to severe torque, speed, and misalignment conditions as required in marine drive systems.

### Hjelde Named President For Atlantic Region Of Merged Barber Interests

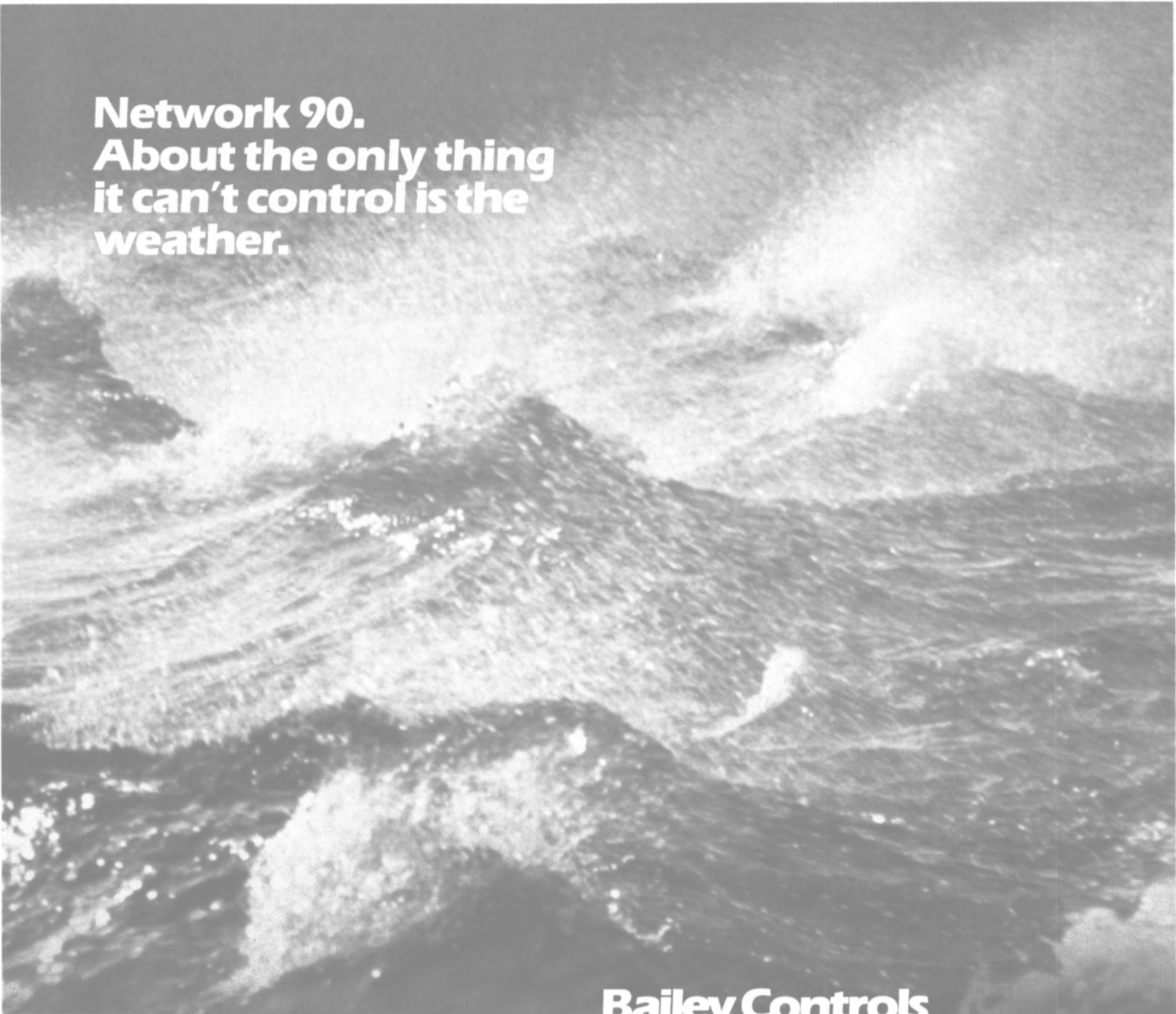
Following the recent merger of the agency interests of Barber Blue Sea and Barber Steamship Lines in the Atlantic Region, Capt. **Hans J. Hjelde** has been appointed president of the combined organization.

**Michael A. Elliott**, previously president of Barber Blue Sea (NA) Inc., returns to an executive position at Ocean Transport and Trading, the British shipowner member of the Barber Blue Sea international consortium. He will be based in London.

Associated with Barber Steamship Lines and its affiliates since 1969, Captain **Hjelde** was previously general manager of the North Atlantic Region, and has served as vice president and general manager of the Mid Atlantic Region at a Baltimore office that he established in 1979. He is a graduate of the Royal Norwegian Naval Academy.

Maritime Reporter/Engineering News

**Network 90.  
About the only thing  
it can't control is the  
weather.**

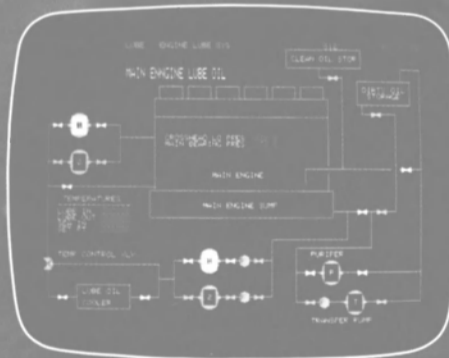


## Bailey Controls

Bailey NETWORK 90<sup>®</sup> is a micro-processor-based system designed to deliver flexibility in integrated vessel and offshore operations that is years ahead of the competition.

Qualified to worldwide marine standards, NETWORK 90 provides a highly cost-effective solution in all sorts of applications, from single loop control to complex control strategies aboard vessels and platforms.

NETWORK 90 provides *total* vessel monitoring and control (performance optimization, cargo and ballasting, emergency shutdown, etc.) not just engine room control. It rides herd on offshore platforms—both manned and unmanned—for HVAC and damage control, well head, compressor surge, and complete pipeline control. It even manages remote-



operated vehicles for diving, maintenance and inspection. Plus it provides energy management and stability simulation for semi submersibles.

Measured against conventional stand-alone controls, a NETWORK 90 Integrated

Marine Management System can cut installation costs 20-30%, bring 10% fuel savings, and reduce maintenance time significantly.

More important, it can bring priceless peace of mind. Because out there where the weather can turn on you, you need a control system that won't.

NETWORK 90 Integrated Marine Management Systems. Before you go near the water without one, call us toll free at 1-800-554-9030. Or write us at 29801 Euclid Avenue, Wickliffe, Ohio 44092. Bailey Controls, division of Babcock & Wilcox, a McDermott International company.



**Where the world comes  
for energy solutions.**

# TEAMWORK

You probably know us best for our horsepower. But we'd like you to remember us most for our team spirit. And our pride in product and service.

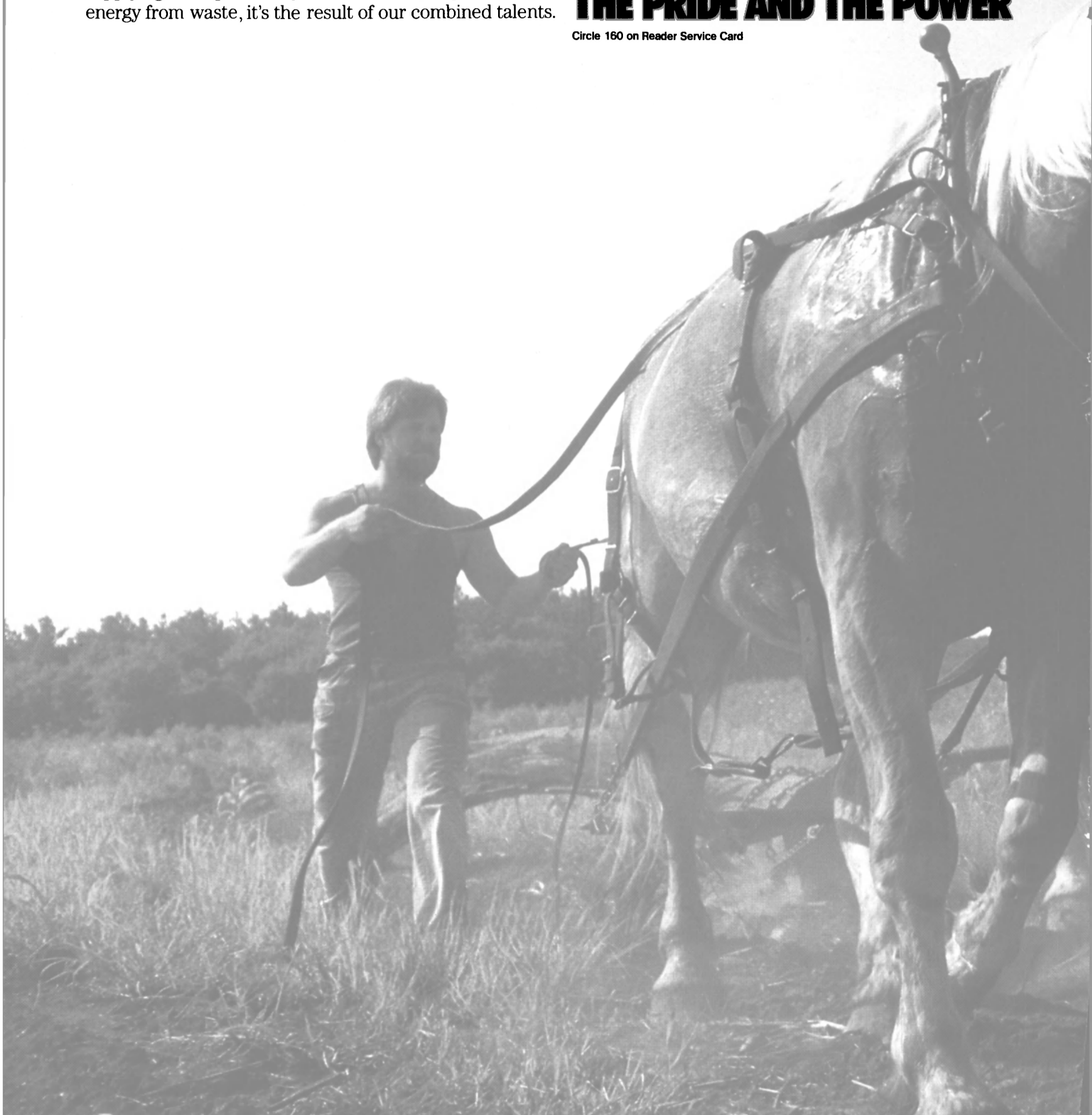
Whether we're designing engines for the high seas, supplying extra power to your hometown, or generating energy from waste, it's the result of our combined talents.

Our group effort. And a belief in each other. And because you're part of the team, we want to know your needs and hear your suggestions ... no one has all the answers. At Fairbanks Morse, we're a lot more than a lot of horsepower.

For the teamwork approach to diesel power and propulsion, write or call Colt Industries, Fairbanks Morse Engine Division, Beloit, Wisconsin 53511. 608/364-4411.

## THE PRIDE AND THE POWER™

Circle 160 on Reader Service Card





# Fairbanks Morse

Engine Division

---

**Colt Industries**



## Louis Allis Pacer Motors Now Available Through 50 HP —Literature Available

Louis Allis of Milwaukee, Wis., a division of Magnetek, Inc., recently announced the extension of their Pacer line of AC motors to include open drip-proof to 50 hp, and C-Face motors from 1 through 10 hp. Standard Pacer motors afford-

ably priced, available from stock through the Louis Allis Distribution Center in Milwaukee, or through independent distributors nationwide, represent the ideal motor for commercial or light industrial applications.

Louis Allis is a leading producer of electric motors, adjustable speed drives, and power generation equipment,

Circle 54 on Reader Service Card

## Tideland Signal Introduces Frequency-Agile Racon —Literature Offered

Tideland Signal Corporation of Houston, Texas, has recently introduced the SeaBeacon®, a frequency-agile radar beacon (racon) which uses microprocessor technology. The SeaBeacon uses high-speed digital signal processing to service

hundreds of vessels simultaneously.

The SeaBeacon has a wide variety of applications, from use as a land-fall identification to marking offshore platforms. The racon protects vulnerable offshore structures by responding to marine radars with a distinctive coded trace which appears on the radar screen, accurately identifying the platform and its location in all weather.

For free literature fully describing the features and applications of the new SeaBeacon from Tideland Signal Corporation,

Circle 84 on Reader Service Card

## Tenn-Tom Tonnage Up Sharply From Last Year

Tonnage moved on the Tennessee-Tombigbee Waterway during the first six months of 1986 has surpassed the total amount shipped last year, according to a recent announcement by the Tennessee-Tombigbee Waterway Development Authority in Columbus, Miss.

For the period of January 1 to June 30, the cumulative total of all shipments on the Tenn-Tom was 1,853,171 tons. A total of 1.7 million tons moved over the waterway during 1985, the initial year of operation. During the first six months of 1985 the total stood at 567,000 tons. The waterway opened to navigation in January last year.

## Penske Literature Details New Onboard Diagnostic System

Penske GM Power, Ronkonkoma, N.Y., recently introduced its new computerized monitor, the Penske Onboard Diagnostic System.

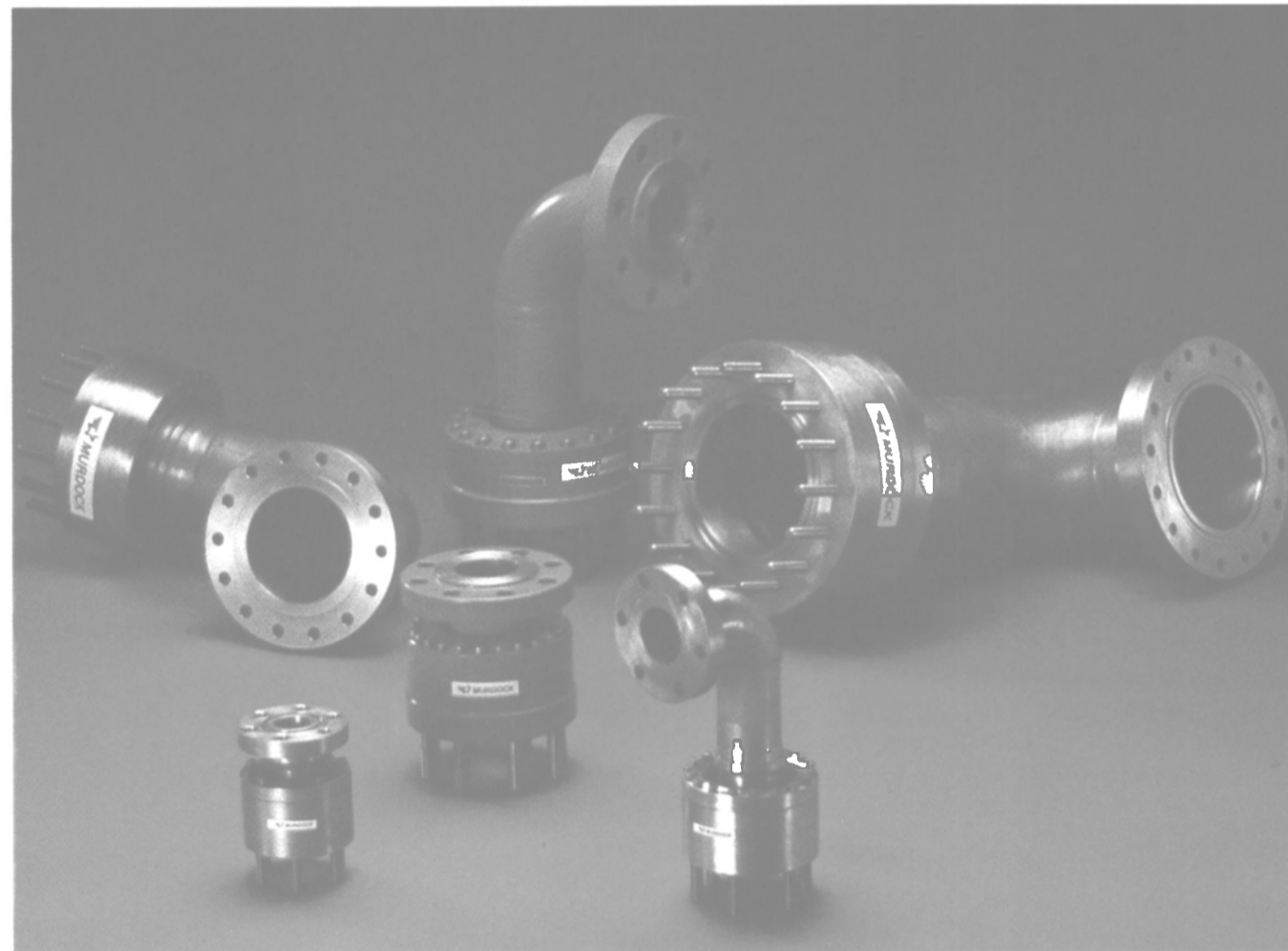
The Penske system, available for all Penske Single Turbocharged engines, is a small (6 inches by 3 inches) microprocessor controlled, solid-state computer. Utilizing a three-digit vacuum fluorescent readout, the water and shock resistant unit will alert the operator to potential fault conditions, according to the manufacturer, before they become a problem.

The onboard computer monitors pressures in the airbox, measures out-flow pressures from the raw water pump, the fuel pump and the turbocharger compressor discharge, incorporates a pyrometer to measure exhaust gas and gear oil temperatures, and even checks the water and oil . . . without even opening the "hood".

Penske GM Power's engineering team has brought the computer age to the hostile environment of the engine room. The high-technology of electro-optics, thermo couples and programmed computer software now allow direct interface between the operator and his second largest investment, his engines. The Penske Onboard Diagnostic System is available on Penske's line of high performance "Advantage" marine diesels and can be retrofitted to certain existing marine diesels.

For further details and free literature,

Circle 32 on Reader Service Card



## Design simplicity, gives Murdock Lockseal® RISIC units unequaled reliability.

In fact, Murdock Lockseal Rubber Insert Sound Isolation Couplings are so reliable they're the only RISIC units qualified for new submarine service.

They're used exclusively aboard SSN 688 and Trident Submarines. And they've been in continuous ship-board service for the U.S. Navy since 1974.

The patented\* design features an advanced elastomeric seal. The seal provides omni-directional flexing between resiliently mounted machinery and associated piping. While it protects the piping system, the seal also attenuates sound and damps vibration.

RISIC-2 units, with separate elastomer moldings, and RISIC-2A units, with integral elastomer moldings, are

offered in straight-through and 90 degree elbow configurations.

Murdock RISIC units come in all standard pipe sizes. And Murdock has the extensive design, manufacturing and testing facilities to engineer, produce and test RISIC units in special sizes and materials.

For more information on reliable RISIC units for your application, write or call Murdock today.

## MURDOCK ENGINEERING COMPANY

P.O. Box 152278, Dept. 1500, Irving, TX 75015  
Phone: 214-790-1122. TWX: 910-860-5901. Telex: 792996

\*Patent Nos. 3,734,546; 4,068,864. Lockseal is a registered trademark.

Circle 281 on Reader Service Card

See us in Booth F6/F7 at the  
Fifth International Maritime Exposition.

## U.K.-Built Danish Ferries Will Have MacGregor-Navire Access Equipment

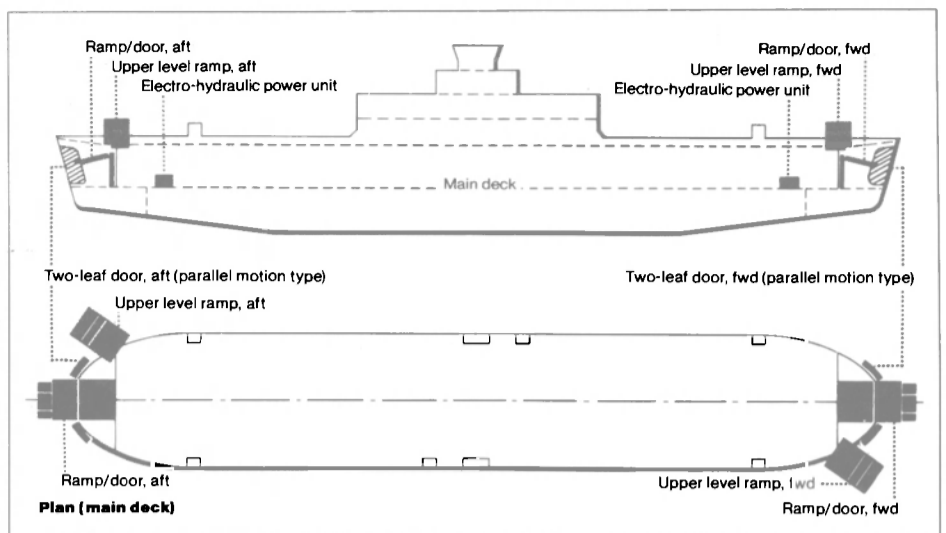
The 24 cargo/passenger ferries that are to be constructed by British Shipbuilders' subsidiary North East Shipbuilders Ltd. (NESL) for Danish interests will be fitted with cargo access equipment of MacGregor-Navire design. With centrally located superstructure, a "beaching" type underhull at both ends, and thrust motor propulsion, each 1,350-grt vessel exhibits, in profile, a symmetrical or double-ended configuration, and will be equipped for access fore and aft. The total of 48 MGN equipment sets to be supplied will each be complete with its own electrohydraulic power unit.

The ship order—negotiated on behalf of the owners by the Danish company PZ Trading A/S of Naestved and its U.K. subsidiary, PZ Shipbuilding & Trading Co. Ltd.—was won by British Shipbuilders against stiff competition, as was the access equipment contract secured by MGN.

Named Superflex 2000 ferries because of their ability to be deployed in a wide variety of world locations and environments, they have an overall length of 311.7 feet, beam of 49.2 feet, depth to main deck of 16 feet, and draft of 11.8 feet. Delivery of the first vessel is scheduled for May 1987.

The vessels are being built by NESL to a design developed and owned by PZ Trading, the company that gave the class the Superflex 2000 name. These ferries are said to be ideally suited for interisland traffic, with Scandinavia being the prime area of operation. However, a number of these vessels are slated for operation in other parts of the world, and the marketing division of PZ Trading reports interest from the Pacific islands, the Caribbean, and the Mediterranean.

These interisland ferries are of similar dimensions and hull form, but are divided into two groups of



12, each group differing from the other in terms of carrying capacity. The group termed the Mk III, of 1,330 dwt, are designed for 24 forty-ton trailers, 40 cars, and 253 day passengers. The other group, the Mk IV, are for 16 forty-ton trailers, 90 cars, and 293 passengers. The lower decks of both groups can accommodate Mafi's, each carrying two 20-ton containers. All of the vessels feature external access, fore and aft, to the upper and lower

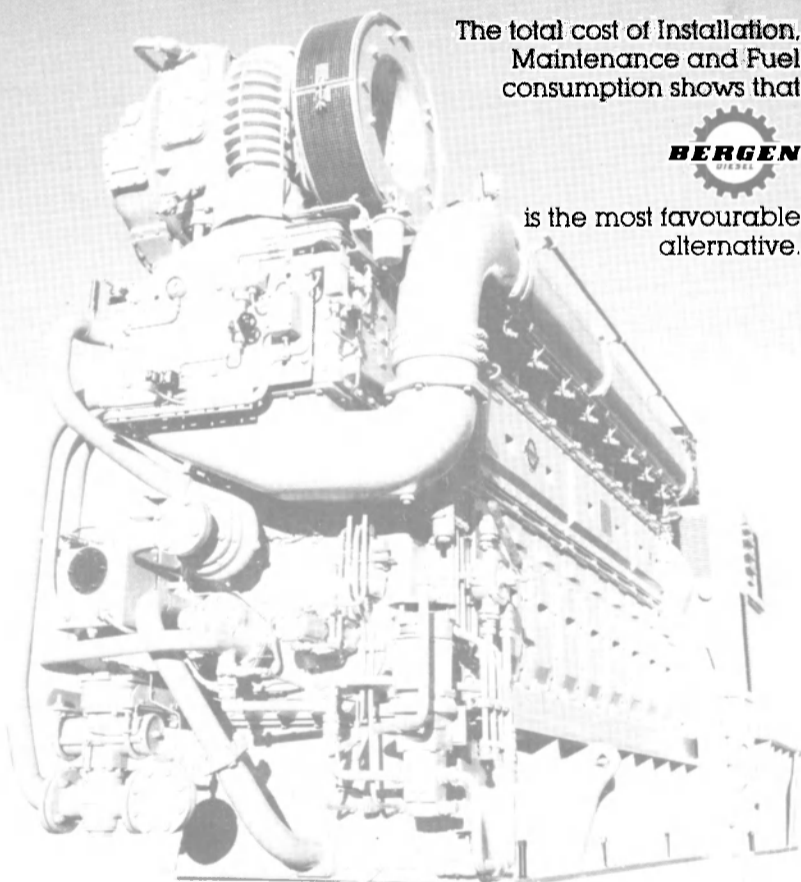
decks; each of the two decks has its own separate ramp at each end.

The lower decks of both groups of vessels will load commercial vehicles and cars. These decks and ramps will therefore sustain the heavier loadings of the Mafi's with 16½-ton axle loads, road trailers, and cars.

Each MGN shipset consists of the following: two sets of operating equipment for the watertight fore

(continued)

### MOST PROFITABLE DURING LIFETIME!



The total cost of Installation, Maintenance and Fuel consumption shows that



is the most favourable alternative.

## Bergen Diesel

Postboks 924, N-5001 BERGEN, Norge  
Tel.: (47 5) 19 00 00 - Telex: 42 735 bmvh-n  
Teletax: (47 5) 19 04 05

Circle 166 on Reader Service Card

November, 1986

## The right propellers: you may or may not have them. But you can sure find out in a hurry. For free.

The right propellers can save on engine wear and fuel, increase speed and improve maneuverability, withstand damage, protect your shaft-line, and last a lot longer.

Tall order? Not if the engineering is competent.

We will engineer the right propellers for your boat. Free. Send the coupon today and get it underway.

Builders of commercial, fishing, and military craft specify Columbians with confidence. We build them in CF-3 stainless steel, Nibral, and manganese bronze, in diameters up to about 14 feet.



Hydro-lite—for efficiency at high shaft speeds



Hydrosonic—general service displacement hulls



Tetradyne—quieter high-performance



Makc—high HP high-performance hulls



Fishmaster—trawlers and draggers



Crewboat—high thrust with high reliability



Yes, we want you to engineer the right propellers for us: MR

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Telephone \_\_\_\_\_  
Vessel(s) Type and Size \_\_\_\_\_



**Columbian Bronze Corporation** Dept. M-3  
216 N. Main Street Freeport, NY 11520  
Telephone (516) 378-0470

Circle 135 on Reader Service Card

57

## U.K. Built Ferries

(continued)

and aft doors; two sets of ramps/doors, lower level, giving access to each end of the main deck; two sets of ramps, upper level, giving access to each end of the weather deck; and two sets of electrohydraulic pump units, one to serve the forward and one to serve the aft access equipment.

Building of the 24 vessels will be

divided between the two Sunderland-based NESL yards of Pallion and Southwick (the former Sunderland and Austin & Pickersgill yards, respectively). Four of the ferries were ordered by one Danish owner, with the remaining 20 being contracted by other shipowners and investors.

For additional information and free literature on MacGregor-Navire cargo access equipment,

Circle 57 on Reader Service Card

## South Korean Yard Hyundai To Lengthen ACL Containerships —Valued \$20 Million

The South Korean yard Hyundai was awarded the contract to lengthen four Atlantic Container Line (ACL) roll-on/roll-off containerships employed on the North Atlantic, it was recently confirmed by ACL.

The U.K. shipyard Scott Lithgow is expected to have the contract to stretch a fifth ship, the Atlantic Conveyor, placed with them. Scott Lithgow is part of the Trafalgar House group that owns Cunard, ACL's British partner.

The vessels are to be lengthened by about 137 feet to a total length of about 958 feet, resulting in an increase in capacity from 1,432 twenty-foot equivalent units to 1,768 TEUs. The number of roll-on/roll-off units carried will be raised from 400 to 562, while car-carrying will group by 150 units a ship.

ACL, a consortium of six major European shipping companies, said the increased capacity of these five ships would provide it with a number of options regarding future employment of the whole fleet. The cost of lengthening is believed to be around \$5 million per vessel.

## New Edition Of Jane's High-Speed Marine Craft And Air Cushion Vehicles

Jane's Publishing, Inc. of Boston, Mass., has announced the publication of a new updated edition of *Jane's High-Speed Marine Craft and Air Cushion Vehicles* (formerly *Jane's Surface Skimmers*).

This nineteenth edition, edited by Robert L. Trillo, features extensive coverage of conventional high-speed surface marine craft; a new section on high-speed monohull vessels, including motor yachts; high-speed craft operators; builders and designers; manufacturers of propulsion systems; licensing authorities; consultants; and over 450 photos and line drawings. The price is \$125.

For free literature and an order form,

Circle 77 on Reader Service Card

## Maxim® Evaporators Introduces New Standard Designs

Riley-Beard, Inc., one of the leaders in the field of seawater distillation and a major supplier of heat recovery evaporators with capacities of up to 30,000 gpd, recently introduced the Maxim® HJ and TCF Series heat recovery evaporators.

These standard, field-proven designs now offer a wider range of freshwater capacities—greater capacity per size with two new sizes to choose from—to enhance performance and minimize maintenance.

Maxim evaporators are conventional units of a tubular design, with 90-10 copper/nickel materials and flat gaskets. These standard models will double and triple the capacity per developed horsepower, when they are arranged in series as multiple effects.

To receive free copies of brochures describing these new, improved models from Riley-Beard,

Circle 39 on Reader Service Card

Maritime Reporter/Engineering News

## OMNITHRUSTER® Thrust Is Forwards And Sideways And Backwards

NCM-1 210 U.S. NAVY MINE COUNTERMEASURE SHIP  
PETERSON BUILDERS, INC.  
CONTRACT NUMBER 27-001 AMT  
HORIZONTAL 350 HP DC  
ELECTRIC DRIVE



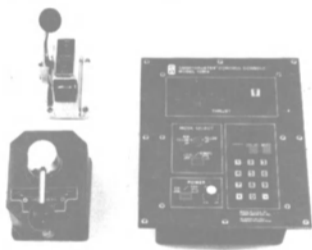
360° Maneuvering,  
Slow-Speed Propulsion,  
Ice Management!

- ◆ Thrusts Underway
- ◆ Thrusts While Pitching
- ◆ No Reversing Impeller to Change Directions
- ◆ Minimum Buoyancy Loss
- ◆ Smaller Hull Penetration
- ◆ Fuel Savings

### OMNITHRUSTER DOES IT ALL!

- ◆ Thrusts with nozzles out of water in rough seas: vertical systems only.
- ◆ No protrusions . . . no change in hull shape.
- ◆ Small nozzles reduce drag . . . save fuel and passage time.
- ◆ Easily retrofitted.

SNAME  
Booth #210



Micro-Processor Control System, Model 1200A with gyro input . . . holds vessel's heading. System also accepts compatible NAV AIDS fore-aft and slow speed propulsion and positioning.

### MODULAR THRUSTER SYSTEM . . .

OMNITHRUSTER ship control systems\* utilize individual module thrusters of up to 3000 HP in any combination to produce desired forward or lateral net thrust. Prime movers for the Modular Thruster System may be electric, hydraulic or diesel powered in conjunction with manual/automatic or integrated control networks.

### ADVANTAGES FOR LARGE VESSELS . . .

- Incremental Thrust Capability
- Multiple Module Reliability
- Easily Retrofitted or Installed in New Construction
- Minimum Maintenance

JT/PV1700, 1500HP  
MODULE THRUSTER



\*Covered by U.S. and Foreign Patents.

### OMNITHRUSTER INC.

9515 Sorensen Avenue, Dept. 31-116  
Santa Fe Springs, California 90670  
213/802-1818 Telex 194265 OMNI SFES  
Cable Address Omnithrust

Circle 346 on Reader Service Card



NKS  
INDUSTRIA PESADA

HEAVY STEEL CASTINGS  
AND  
FORGINGS  
IN  
MEXICO  
CONGRATULATES

SNAME

ON OCCASION OF ITS  
94 TH  
ANNUAL CONVENTION

Circle 321 on Reader Service Card

## The Hydro-Craft MULTI-CLAMP SYSTEM

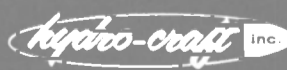


NO SHOCK, LOW NOISE  
NO VIBRATION  
Tube & Pipe Support

Multi-Clamp—A total system of planning, installing and retaining pipes, hoses and tubing. Use for hydraulic, cooling, pneumatic, lubrication, refrigeration or fuel lines. Supports tube and pipe in singular or multiple rows. Stacks in "building block" type construction.

- Vertical & horizontal center line distances remain equal.
- Provides for simplified do-it-yourself installation.
- Off-the-shelf delivery in sizes 3/16" thru 6" O.D.

CONTACT US TODAY FOR OUR FULL-LINE CATALOG  
Clamps • Reservoirs • Hydraulic Accessories



1821 Rochester Industrial Dr.  
Rochester, Michigan 48063  
(313) 652-8100 TELEX 023-5677

Circle 171 on Reader Service Card



# Newport News can breathe new life into your fleet.

To jumboize a ship takes superior technology, facilities and imagination. At Newport News we have them all, more than any other shipyard.

Our plant and our trained people give us a greater capacity to convert your ships for years of extended service.

Integrated Computer Aided Design/Computer Aided

Manufacturing allows us to build more complete, more accurate subassemblies...even 900-ton construction modules that fit together like a glove.

That's why at Newport News, your job is done on time and the way you want it.

So when you've got a problem, come to us. We can handle the toughest jobs,

including some that other shipyards won't even attempt.

Newport News Shipbuilding.  
Newport News, Virginia 23607.  
1-804-380-2600. Telex 82-3453.  
TWX 710-880-0007.

**Newport News  
Shipbuilding**



A Tenneco Company  
Newport News, Virginia 23607



The 224-foot-long MCM-3 Sentry is the second mine countermeasure ship of this new class to be launched at Peterson Builders, Sturgeon Bay, Wisc.



The principals at the launching ceremony of the Sentry included (L to R): **Leonard Pouliot**, husband of the matron of honor; **Ellsworth L. Peterson**, president of Peterson Shipbuilders, Inc.; Capt. **James E. Hancock**, USN, Deputy Commander/Comptroller, NAVSEA; **Robert E. Peterson**, executive vice president of PBI; **Elaine Kelleher Murphy**, sponsor; **Marguerite Pouliot**, matron of honor; Adm. **Daniel J. Murphy**, USN (Retired), keynote speaker and husband of sponsor; and Capt. **Thomas Kile**, USN, Supervisor of Shipbuilding, Conversion and Repair, Sturgeon Bay, Wisc.

## Peterson Builders Launches Another Minecountermeasure Ship, MCM-3

—Literature Available—

The third of a new class of mine countermeasure ships, the MCM-3 Sentry, was launched and christened recently at Peterson Builders, Inc., Sturgeon Bay, Wisc. The Sen-

try is the second MCM of the Avenger class to be launched at Peterson.

Peterson has five of the wooden MCM mine countermeasure vessels

under contract with the U.S. Navy and holds the contract for the lead yard design work for the MCM program as well. The lead ship of the class, MCM-1 Avenger, was launched at PBI June 15, 1985. The sister ships, MCM-5, -6, and -8 are in following construction stages at the yard.

Mrs. **Elaine Kelleher Murphy** was sponsor of the Sentry, with Mrs. **Marguerite Pouliot** acting as matron of honor. Mrs. **Murphy's** husband, Adm. **Daniel J. Murphy**, USN (Ret.), was the keynote

speaker at the ceremony. Capt. **James E. Hancock**, USN, Deputy Commander/Comptroller of NAVSEA, was the Naval Sea Systems Commander speaker for the event. The ceremonies were also attended by PBI president **Ellsworth L. Peterson**.

The MCM ships represent the beginning of the U.S. Navy's new mine warfare vessel program. The MCMs will provide an enhanced surface mine-hunting, minesweeping, and

(continued)

**From Samoa to San Francisco  
From Los Angeles to San Diego**

**For QUALITY  
VERSATILITY  
PERFORMANCE**

**SOUTHWEST MARINE, INC.**  
SPECIALISTS IN THE REPAIR, MODERNIZATION & MAINTENANCE OF SEAGOING VESSELS

<b>SAN DIEGO YARD</b> Southwest Marine, Inc. Foot of Sampson Street P.O. Box 13308 San Diego, CA 92113 (619) 238-1000 TWX No. 910-335-1167	<b>SAN PEDRO YARD</b> Southwest Marine, Inc. 985 S. Seaside P.O. Box 3347 Terminal Island, CA 90731 (213) 519-0600 TWX No. 910-345-6638	<b>SAN FRANCISCO YARD</b> Southwest Marine of San Francisco, Inc. P.O. Box 7644 (Pier 28) San Francisco, CA 94120 (415) 543-0499	<b>SAMOA YARD</b> Southwest Marine of Samoa, Inc. P.O. Box 1387 Pago Pago American Samoa 96799 684 633-4122 Telex: 525 SWM SB
--	---	--	---

SOUTHWEST MARINE, INC. 1983

## PRODUCT DIRECTORY

FOR STANDARD AND CUSTOM FASTENERS. MIL-S-1222, MIL-B-857, MIC LEVEL 1.

The following is a partial listing of the most frequently used commodities and their specifications; many others are available upon request.

**FASTENER SPECIFICATIONS:**  
BOLTS: ASTM A193, A307, A320, A325, A354, A490, F468, F593, FF S 85, MIL-B-857, MIL-S-1222  
EYE BOLTS: ASTM A489, MIL-B-45908  
MACHINE SCREWS: FF S-92  
NUTS: ASTM A194, A565, F467, F594, FF-N 836, MIL-B-857, MIL-S-1222

PHOSPHOROUS BRONZE: QQ-B-750  
SILICON BRONZE: ASTM B98, ASTM B99, ALLOY 651, 655, QQ-C-591  
STAINLESS STEEL: QQ-S-763, QQ-S-764, 300 Series, 304 (304 COND.B), 316 (316 COND.B), 410 (410 H.T.), 416 (416 H.T.)  
STEEL, CARBON AND ALLOY: ASTM A193, A307, A354, A490, FED-STD-46, MIL-S-890, MIL-S-5000 (+3+0), SAE J429  
TITANIUM: MIL-T9047

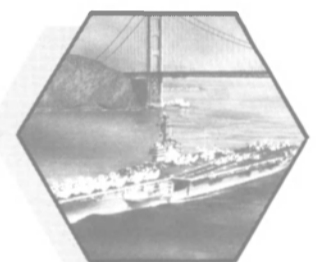
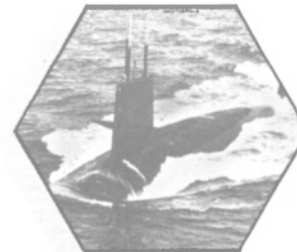


PINS: FF-P 386, MIL-P10971, MIL-P16610  
RIVETS: FFR 556, MIL-R 24243  
SOCKET SCREWS: ASTM A574, FF S 86, FF S 200, FF S 210  
STUDS: ASTM A193, MIL-B 857, MIL-S 1222, MIL-S 74149  
THREADED ROD: ASTM A193, MIL-S 1222  
WASHERS: ASTM F436, FFW84, FFW92, FFW100

**MATERIAL SPECIFICATIONS:**  
ALUMINUM: 2024-T4, 6061-T6  
ALUMINUM BRONZE: QQ-C-465  
HASTELLOY ALLOYS: B2, C276  
INCONEL: ALLOY 625, ASTM A-446  
K-MONEL: QQ-N 286, MS1816  
MONEL: 400: ASTM B164, CL.A., 00-N 281, CL.A.  
MONEL: 405: ASTM B164, CL.B, 00-N 281, CL.B  
NAVAL BRASS: QQ-B 637  
NICKEL ALUMINUM BRONZE: MIL-B 2-4059

**PLATING SPECIFICATIONS:**  
BLACK OXIDE: MIL-C 13924, CL.1, CL.2  
CADMIUM: ASTM A165, QQ-P-416  
CERAMIC COATING: MIL-C 81751  
CHROMATE  
HOT DIP GALVANIZE: ASTM A153, MIL-F17871  
HARD CHROME: QQ-C-320  
IMMERSION ZINC FLAKE: MIL-C 87115  
ION VAPOR DEPOSIT: MIL-C 83488  
MECHANICAL GALVANIZE: ASTM B454  
NICKEL: QQ-N 290  
PHOSPHATE: MIL-P 16232  
ZINC: ASTM A164, ASTM B633, QQ-Z-325

**SELF LOCKING SPECIFICATIONS:**  
MIL-F18240, CONE A/B, MIL-N-25027



**MANUFACTURERS CATALOG ITEMS ALSO AVAILABLE:**

ALLEN MFG.—Socket & Set Screws, Nuts & Keys  
BETHLEHEM—Bolts, Nuts, Screws  
BUCKEYE FORGE—Eye Bolts, Small Forgings  
CHERRY—Blind Rivets  
DRIVE-LOK, INC.—Grooved & Spring Pins  
GREER-SMYRNA—Nylon Insert Lock Nuts  
GROOV-PIN—Grooved & Spring Pins Inserts  
HELI-COIL®—Coiled & Solid Inserts  
KAYNAR—High Strength Aerospace Locknuts  
LONG-LOK®—Self Locking Fasteners  
NELSON—Weld Studs  
NYLOK®—Self Locking Fasteners  
PANDUIT—Cable Ties  
SHAKEPROOF®—Washers  
S.P.S. (FLEXLOC)—High Strength Lock Nuts  
S.P.S. (UNBRAKO)—Socket & Set Screws, Keys, Pins  
SOUTHCO, INC.—Captives Fasteners, Latches, 1/4 Turn Fasteners  
SOUTHERN SCREW—Machine & Tapping Screws  
TRIDAIR—Inserts  
WALDES—Retaining Rings

Our Quality Control system satisfies the requirements of MIL-I-45208A, MIL-STD-45662 and MIC Level 1

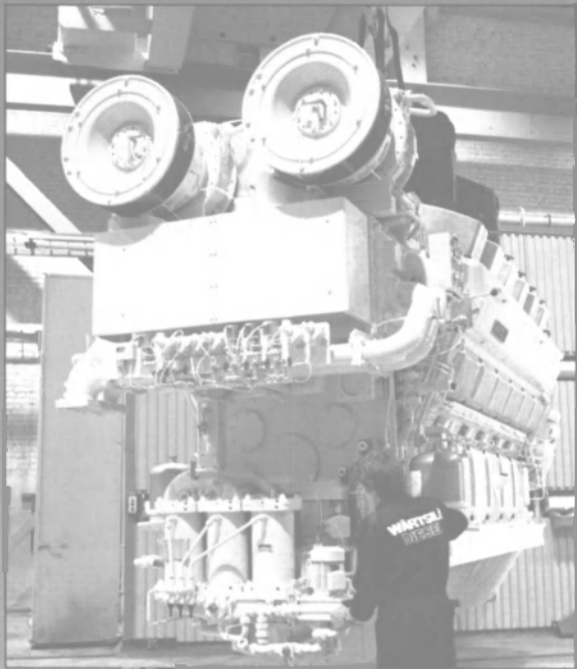


**HARDWARE SPECIALTY CO. INC.**  
SHIPS DIVISION

48-75 36TH STREET, LONG ISLAND CITY, NEW YORK 11101  
TELEPHONE: (718) 361-9393/TWX: 710-582-2547  
TELEX: 12-5468/TELECOPIER: (718) 937-5907/CABLE: HARDSPEC NYK

Circle 231 on Reader Service Card

Circle 240 on Reader Service Card



Long-term service experience confirms that Wartsila Diesel engines are capable of burning the low fuel qualities of the future. For example, the recommended time between overhauls for the Vasa 32 engine on heavy fuel is today 12 000 hours.

# PREPARED FOR THE FUTURE WITH WÄRTSILÄ DIESEL.

Which fuel quality will your offshore installation be running on in the future?

Whatever the answer, the Real Heavy Fuel Engines from Wartsila Diesel offer you a way to be prepared. A way already in service worldwide.

A way already proven in the toughest operating conditions. And what's more, a way that will start paying for itself immediately.

Safety, Reliability and Total Economy — for whichever fuel quality your offshore installation is going to run on.

Circle 302 on Reader Service Card

**THE REAL HEAVY FUEL ENGINES VASA22 HF AND VASA 32. FROM 530 TO 6750 kW.  
THE ENTIRE RANGE FOR 700 CST.**

## WÄRTSILÄ DIESEL

Production plants in Finland, Sweden and Singapore

**WARTSILA DIESEL INC.**  
5132 Taravella Road, Marrero, LA 70072  
Tel. (504) 341-7201  
Telex 810-951-6386 wartsila marr

**WARTSILA DIESEL INC.**  
720 North Post Oak Road, Suite 400,  
Houston, TX 77024  
Tel. (713) 957-2539, Telex 794-224 mempark hou

**WARTSILA DIESEL INC.**  
420 Lexington Avenue, Suite 2613, New York 10017  
Tel. (212) 599-1360  
Telex 971358 wpi ny

## Peterson Launches Another MCM

(continued)

mine neutralization capability by utilizing state-of-the-art combat systems equipment. Mine countermeasure technology is incorporated into a specially designed platform which includes low-magnetic signature diesel engines, a precise electronic navigation system, minehunting and classification sonar, and a mine neutralization system. The

MCM mission is to hunt, neutralize and sweep mines in coastal waters and critical overseas areas.

A wide variety of special skills, equipment and materials are utilized in laminating the ship's major structure from Douglas fir, white oak and Alaskan cedar, sheathed with glass-reinforced plastic. This Avenger class MCM represents the largest wooden ships in the Navy fleet. They are 224-feet long with a beam of 38 feet 11 inches and a draft of 11 feet 3 inches. The vessel's dis-

placement is 1,145-ton light ship and 1,250-ton full load. The MCM is powered by four diesel engines rated at 600 hp each. They are equipped with a 350-hp bow thruster and electric power is supplied by three 60-Hz, 376-kw generators. The MCM accommodates a crew of 81.

For free literature detailing the shipbuilding facilities and services of Peterson Builders, Inc.,

Circle 1 on Reader Service Card

## Volvo Penta Names Alan Revington New General Manager



Alan Revington

Alan Revington was recently named general manager and a member of the board of directors of Volvo Penta of America. Robert Bridge has taken a position in corporate finance with Volvo North America Corporation and will remain on the board of directors for Volvo Penta of America.

Mr. Revington, a native of Manchester, England, holds a degree in mechanical engineering and is a corporate member of the Institution of Mechanical Engineering. He brings to his new position more than a dozen years' experience with Volvo Penta in the United Kingdom and Sweden. For three years while headquartered in Sweden, he served as marine engine sales manager for North America and Europe. Immediately prior to coming to the United States, he spent a year as a director of Hydrodiesel, Ltd. in England, marketing diesel powered industrial equipment.

Mr. Revington has held various posts in professional organizations in the United Kingdom. These include vice chairman, The Marine Engine Manufacturers Association; council member, The Ship and Boatbuilders National Federation; and chairman, The Manchester Polytechnic Engineering Society.

## PMB Offers Literature On Actuated Multi-Port Valve Manifold

PMB's state of the art actuated multi-port ball valve manifold simplified the piping system on computer controlled U.S. Coast Guard cutters.

Six multi-port ball valves are controlled by three double-acting vane actuators. Limit switches give positive valve position indication on a remote panel to the operator.

Multi-port ball valves in four- and five-seated configuration are available in sizes 3/8-inch to 4 inches. Pressures to 400 psig and temperatures to 500° F are possible. Metals include bronze, ductile iron, carbon steel and 316 S.S.

Actuators are available in double-acting and spring-return pneumatics and weatherproof and explosion-proof electrics.

For further information and free literature from PBM,

Circle 86 on Reader Service Card

## Here's the better way to meet your long bar and shaped shaft needs

Now there's a better way to meet your long bar and shaped shafts needs in single pieces or shorter pieces in multiples, thanks to the unique capabilities of Armco's Precision Rotary Forge.

Armco produces finished lengths up to 38 feet with weight up to 12,000 pounds.

Computerized manufacturing assures accurately reproduced multiple pieces. You benefit from close tolerances, excellent straightness, consistent analysis and structure, plus extremely flexible manufacturing schedules to meet your exact requirements.

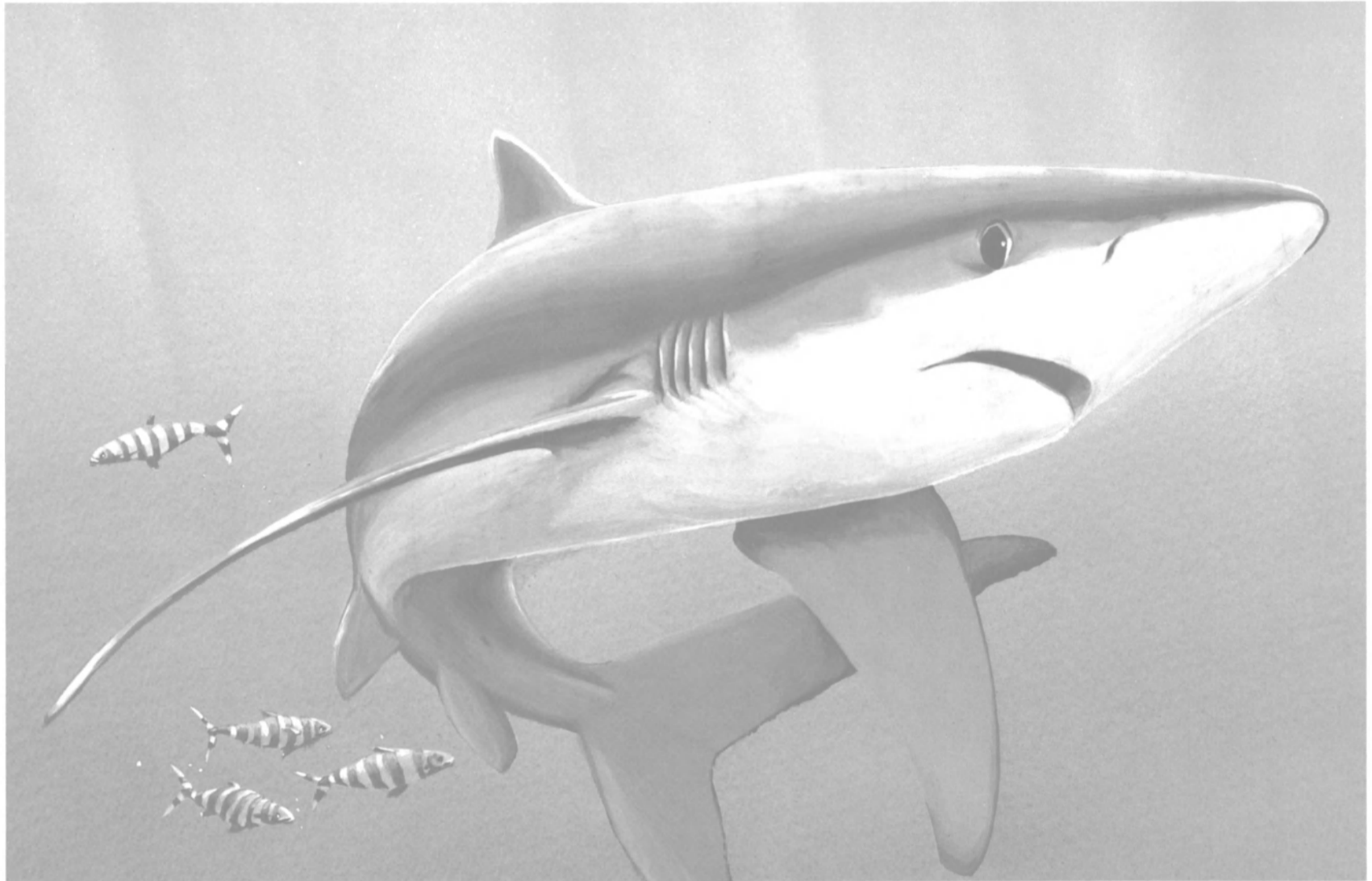
The result? Effective solutions for your equipment design, especially when coupled with our new high-strength stainless alloys.

Start with our own bottom-poured ingots or with material supplied by you. We'll produce one piece or hundreds to meet your specifications. For full technical information call Armco's Customer Information center today at 1-800-638-1452 (in California call 1-800-325-5159. In Baltimore, call 563-5776).

Armco Stainless Steel Products, Baltimore, Maryland 21203.



Circle 141 on Reader Service Card



## SPECIAL SENSES FOR SURVIVAL

For more than 140 million years the shark has relied on an unusual range of very special senses to survive. Evidence accumulated to date is impressive. A shark will, for example, detect and follow scents for a quarter mile. At over 600 feet, he will react sharply to audible noise, and minute pressure variations are sensed by lateral line organs at 100 feet. Then, at 50 feet, a highly reflective eye structure identifies shapes and detects motion in the feeblest light. The shark can detect weak electric fields and possibly even be able to orient himself to the earth's electromagnetic field. In fact, there's probably no other creature in the sea so completely aware of his environment.

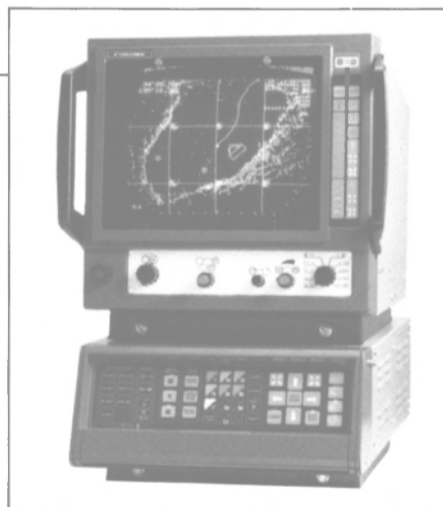
Furuno provides tremendous sensory input to operators of just about any vessel. Our radars offer the best of modern technology, including bright displays that show targets in colors based on return echo strength, custom designed microwave circuitry to enhance receiver performance, even color radars that can also show loran or other navigational track plots on the same screen. And our most recent innovation is a group of digital, or raster scan, radars that use advanced multilevel signal processing to show even weak targets as bright, steady pictures on the CRT.

Furuno. See our complete range of color and digital radars at any of the more than 200 authorized dealer outlets, or write direct for complete product information. And, don't forget Furuno's exclusive Life-Line warranty protection administered by our dealer network.

**FURUNO  
U.S.A., INC.**

271 Harbor Way, P.O. Box 2343  
South San Francisco, CA 94083  
Tel. 415-873-9393/Telex 331419

Furuno. Choice of the professionals.



© 1984 Furuno U.S.A., Inc.



## New Pall Diesel Lube Oil Filters Offer 10-Micron Absolute Filtration

The new Performax™ full-flow diesel lube oil filters from the Mobile Aftermarket Division, Pall Industrial Hydraulics Corporation, provide the users of Detroit Diesel, Caterpillar, and Cummins engines the extended engine life and improved performance of 10-micron

absolute filtration. By removing damaging contaminant particles and greatly extending the useful life of diesel engines, Performax filters are said to offer a level of protection and performance not previously available to the operators of diesel-powered equipment.

The superiority of Performax filters is derived from their high-efficiency filter medium. Constructed of gradient-pore, resin-bonded synthetic fibers, and rated at 98.7 per-

cent efficiency, Performax medium controls the critical 5- to 10-micron wear-causing particles responsible for premature component destruction and deteriorating engine performance.

These characteristics account for longer service life, lower pressure drop, and more consistent performance of Performax filters when compared with conventional, nominal rated, paper type filters. In addition, the inorganic synthetic media

produces a filter element of significant strength and durability.

To obtain the most useful life from Performax filters, Pall offers the Lube-Mynd-R™ engine oil filter monitor. This sensing device, which mounts between the diesel lube filter and the engine, signals the operator of the need to change filter elements when 90 percent of the filter life is consumed, thereby maximizing filter service life while minimizing premature change-out and the risk of operating the filter in bypass.

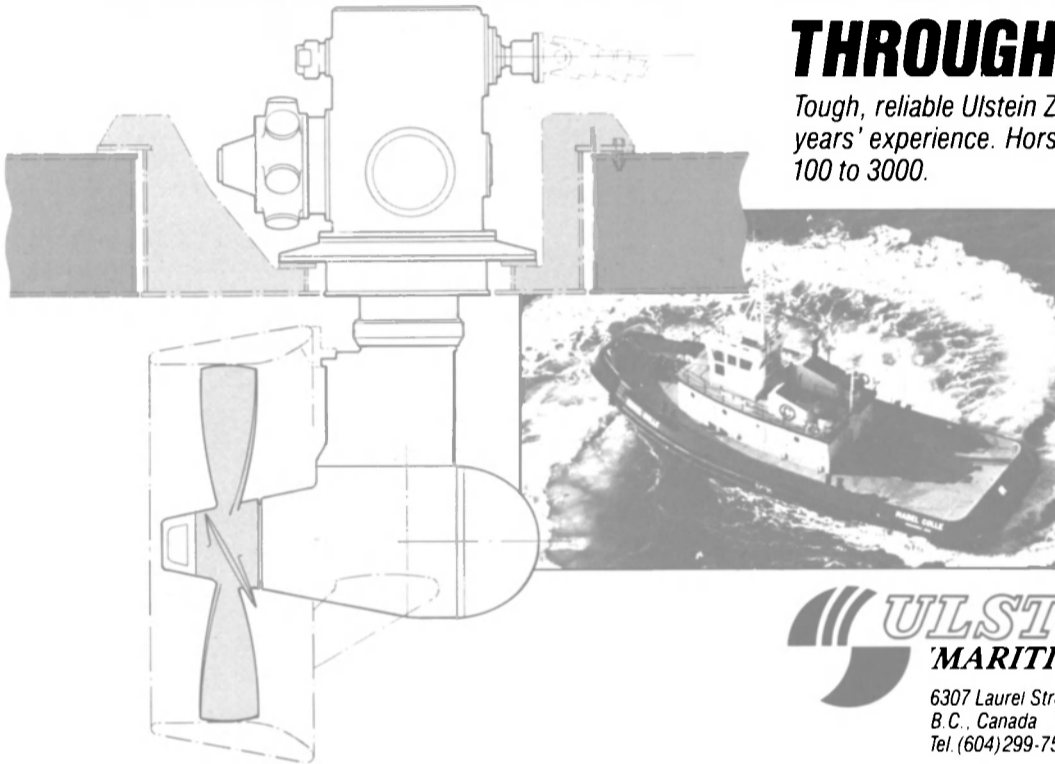
For further information and free literature on Pall's filters and filter monitor,

Circle 40 on Reader Service Card

# Ulstein 360° Z-Drives

## THROUGH-HULL

Tough, reliable Ulstein Z-Drive. Fifteen years' experience. Horsepowers from 100 to 3000.



**ULSTEIN**  
MARITIME LTD.

6307 Laurel Street, Burnaby  
B.C., Canada V5B 3B3  
Tel. (604) 299-7591 Telex: 043-54799

Ulstein, N-6065 Ulsteinvik, Norway, Telex: 42342 • Ulstein Schiffstechnik, Hamburg, Telex: 17-403243 • Ulstein (UK), Edinburgh, Telex: 727383 • Ulstein Singapore, Telex: 24484

Circle 132 on Reader Service Card

## Manitowoc Appoints Wacht VP And General Manager Of Two Subsidiaries

R. Ralph Helm, president and chief operating officer of The Manitowoc Company, Inc., has appointed **Raymond J. Wacht** as vice president and general manager of the company's Manitex Inc. and Manimex S.A. de C.V. subsidiaries. Located in McAllen, Texas, and Reynosa, Mexico, respectively, Manitex and Manimex jointly manufacture pedestal-mounted seacranes used in dockside, marine, and offshore applications. In his new position, Mr. Wacht will be responsible for all design, manufacturing, and marketing activities of the two subsidiaries.

As a registered professional engineer, Mr. Wacht holds active memberships in the American Society of Mechanical Engineers (ASME), Society of Automotive Engineers (SAE), and American National Standards Institute (ANSI).

The Manitowoc Company, Inc. is a diversified manufacturing and engineering firm headquartered in Manitowoc, Wis. The company produces heavy construction liftcranes; crawler-mounted excavators; pedestal-mounted seacranes; commercial ice cube machines and dispensers; self-unloading Great Lakes vessels; ocean-class bulk, chemical, and petroleum barges; and mechanical and drum debarking systems.

## Senate Clears Way For Start Of Merchant Marine And Defense Commission

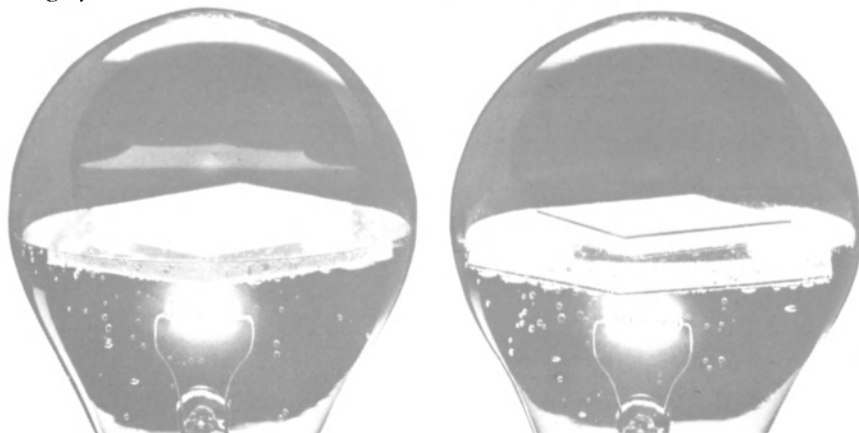
The U.S. Senate recently approved legislation that, if enacted, would activate the long-delayed Commission on Merchant Marine and Defense. The legislation, like language already adopted by the House, clarifies that Commission members will not be considered Federal employees, settling the conflict-of-interest questions raised by the Administration, which has delayed appointing any members to the Commission in the two years since it was established. The new legislation would also extend the Commission's reporting deadline to 21 months after the panel is convened.

# 3 Ideas That Made A Better Joiner Panel

Masonite 80-32 Marine Joiner Panels are the most seaworthy joiner panels around. Three simple reasons spell the difference.

**They will not wick water.** Mop the floors. Spill water. Inorganic 80-32 panels will not wick water behind the laminate surface. There's no fear of a disintegrating core ruining the panels integrity.

**One source accountability.** Surfaces can be laminated to cores and a connecting system supplied by Masonite Corporation, Inorganic Technologies Division. One source...one reliable company that stands behind its products.



**Light weight.** ~~Light weight.~~ yet, 80-32 panels are 30% heavier than the most competitive brand. With variable load becoming a more valuable commodity every day, our light weight story is well worth considering. Send for FREE details, today.

**COMMERCIAL DIVISION**  
MASONITE CORPORATION  
DOVER, OHIO 44622 (216) 343-0703

Circle 349 on Reader Service Card

# Introducing New Crude Oil Tankers

As shipowners' transportation requirements change, so should shiptypes a yard offers keep up with them.

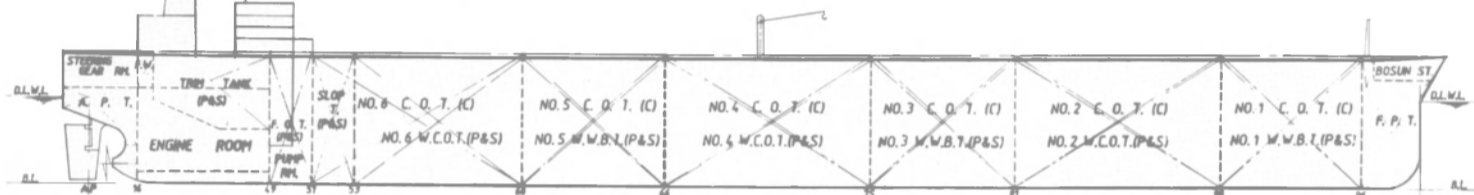
The crude oil tankers here are the offspring of Hyundai's vast experience and in-depth study on clients' operational needs, coupled with our superior design capabilities.

Their hull is shaped for the best fuel-efficiency and structured for the increased speed and deadweight with minimum hull weight.

To ensure added advantage in fuel oil consumption and operation, the latest slow speed main engine (long stroke, large-bore) and optimum propeller are chosen with the reduced rpm and extra-large diameter to the extent that propeller immersion is permitted by Marpol 1973/78 and Solas Protocol 1978.

For further information or your newbuilding requirements of this category, contact Hyundai today.

## 254,000 DWT vLCC



### Dimensions

LOA/LBP/BM/DM . . . . . 322.0/310.0/56.0/29.5 M  
Draft (Design/Scantling) . . . . . 19.8 M

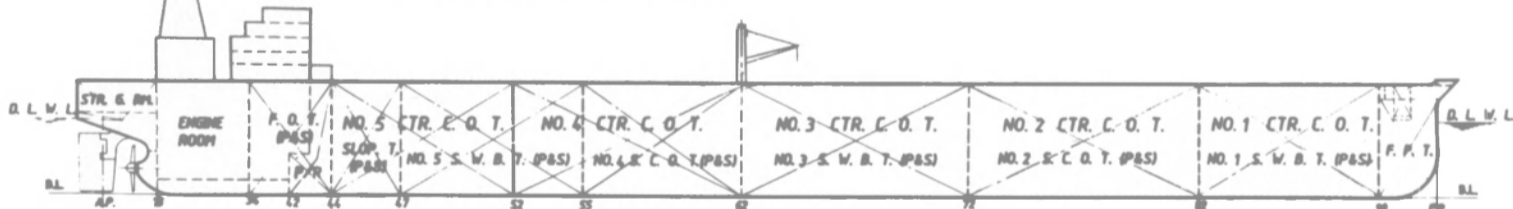
### Deadweight & Capacity

DWT at 19.8 M Draft . . . . . 254,000 MT  
Cargo Oil Capacity . . . . . 305,000 M<sup>3</sup>

### Main Engine

Hyundai-B&W 6L90MCE  
DMCR . . . . . 22,110 BHP x 67.7 RPM  
NCR . . . . . 19,900 BHP x 65.4 RPM  
**Service Speed** . . . . . 14.0 Knots  
**Fuel Oil Consumption** . . . . . 57.03 Tons/Day  
**Segregation** . . . . . Three (3)

## 156,000 DWT Crude Oil Tanker



### Dimensions

LOA/LBP/BM/DM . . . . . 274.0/264.0/46.28/22.5 M  
Draft (Design/Scantling) . . . . . 15.02/16.90 M

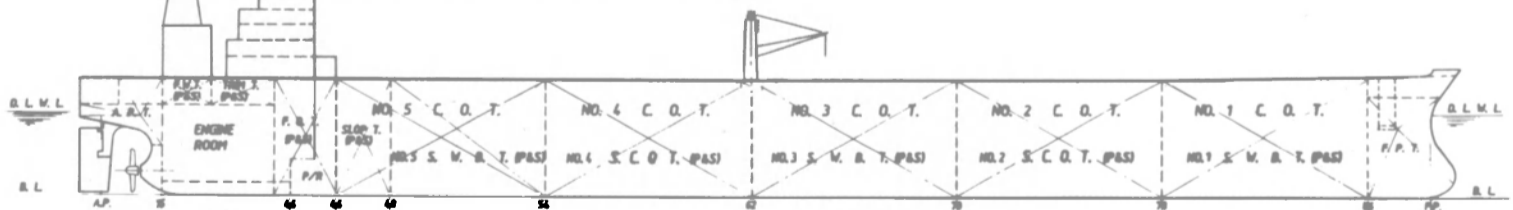
### Deadweight & Capacity

DWT at 16.9 M Draft . . . . . 156,000 MT  
Cargo Oil Capacity . . . . . 162,200 M<sup>3</sup>

### Main Engine

Hyundai-B&W 6S70MC  
DMCR . . . . . 19,520 BHP x 88 RPM  
NCR . . . . . 17,570 BHP x 85 RPM  
**Service Speed** . . . . . 14.5 Knots  
**Fuel Oil Consumption** . . . . . 51.8 Tons/Day  
**Segregation** . . . . . Three (3)

## 114,000 DWT Crude Oil Tanker



### Dimensions

LOA/LBP/BM/DM . . . . . 244.0/234.0/42.67/21.5 M  
Draft (Design/Scantling) . . . . . 14.2/15.6 M

### Deadweight & Capacity

DWT at 15.6 M Draft . . . . . 114,200 MT  
Cargo Oil Capacity . . . . . 125,500 M<sup>3</sup>

### Main Engine

Hyundai-B&W 6S60MC  
DMCR . . . . . 13,820 BHP x 92.2 RPM  
NCR . . . . . 12,440 BHP x 89.0 RPM  
**Service Speed** . . . . . 14.0 Knots  
**Fuel Oil Consumption** . . . . . 37.47 Tons/Day  
**Segregation** . . . . . Three (3)



HEAD OFFICE: 1 CHEONHA-DONG, ULSAN, KOREA TLX: HHIYARD K52452 TEL: (82) ULSAN (522) 32-0803 (SALES DIRECTORS) FAX: (82) ULSAN (522) 32-4001

SEOUL OFFICE: 140-2 KYE-DONG, CHONGRO-KU, SEOUL, KOREA TLX: K28361, K27496 TEL: (82) SEOUL (2) 741-1201/30 FAX: (82) SEOUL (2) 741-1211

TOKYO TLX: 28548 HDT J, TEL: 03-211-0741 BOMBAY TLX: 114696 MAKH IN, TEL: 224285/222172 HONG KONG TLX: 83464 HKHDS HX, TEL: 5-436373

LONDON TLX: 938686 HDLDNG, TEL: 01-741-1531 NEW JERSEY TLX: 6853396 HDC NJ, TEL: 201-585-8289 SYDNEY TLX: 70700 HDSSYD AA, TEL: 02-957-5481

OSLO TLX: 72621 HDOSL N, TEL: 02-410920 ATHENS TLX: 212778 HMDP GR, TEL: 418-0114

## Nichols Brothers Awarded Schooner Hull Contract From Marimed

David Higgins, executive director of the Marimed (maritime medicine) Foundation in Honolulu, has announced the signing of the initial contract for the construction of a 150-foot, three-masted topsail

schooner. The vessel will be outfitted with medical equipment and will be used to provide primary health care and health education services in the Marshall Islands, 2,500 miles southwest of Hawaii.

Nichols Brothers Boat Builders in Whidbey Island, Wash., has been awarded a \$661,500 contract for the steel and aluminum fabrication work on the 280-grt vessel. This will include materials and labor for complete fabrication of the hull, rudder

assembly, engine beds, ladders and coamings, tie-up cleats, zinc pads, watertight manholes, primer and one coat of anti-fouling below the waterline, engineering, and launching. Construction is already underway, and delivery of the bare hull has been scheduled for January 1987. Marimed and Nichols are currently negotiating a follow-on contract covering the installation of machinery and engineering systems.

The outfitting, rigging, and installation of medical facilities will begin in February next year in Seattle under the supervision of Seattle boatbuilder John Guzzwell, the first Englishman to sail alone around the world. He recently supervised the construction of a 130-foot sailing vessel in Brazil.

The Marimed Foundation vessel will be registered in the U.S. and homeported in Honolulu. She has been ruled a cargo vessel by the U.S. Coast Guard, and will be built to the requirements of Subchapter I of USCG Regulations and classed by the American Bureau of Shipping.

The schooner will be named Tole Mour by the Marshallese people, which means "gift of life and health" in their language. She was designed by Capt. Ted Ewbank, president of Ewbank, Brooke and Associates of Auckland, New Zealand.

"We are especially proud to have this international health service and training vessel built in America," Mr. Higgins said, "and we know that she will become a symbol of hope and better health for people in the Marshall Islands."

For free literature describing the services and facilities of Nichols Brothers Boat Builders,

Circle 4 on Reader Service Card



**Nor-Shipping '87**

OSLO, NORWAY 2 - 5 JUNE 1987

## A MUST FOR YOUR BUSINESS

Join the centre of action, the people and the future of international shipping and offshore-related activities.



**Nor-Shipping '87**

The 11th international shipping and maritime offshore exhibition and conference.

The most important destination for your business world in 1987, will be Oslo, Norway - during the first week of June - and the 11th Nor-Shipping exhibition.

The exhibitors will represent all aspects of shipping and the maritime offshore market - on both product and service sides. Nor-Shipping '85 attracted 650 manufacturers from 25 countries, represented by 277 exhibitors from 20 countries.

The Annual General Meetings and Council Meeting of Intertanko, Intercargo, Norwegian Shipowners Association and Northern Shipowners Defence Club will most likely be held in Oslo at the same time.

The exhibitors at Nor-Shipping '85 were able to establish and strengthen contacts with about 8,500 specialists from 45 countries. Make sure you are one of them in 1987.

Return to: Nor-Shipping '87 Norges Varemesse MR-12  
P.O. Box 130 Skøyen, 0212 Oslo 2, Norway

- Please send me the Exhibitor's Brochure and Application Form
- Please send me the Visitor's Brochure (when available)
- Please send me the Conference Programme (when available)

Name: \_\_\_\_\_

Company: \_\_\_\_\_

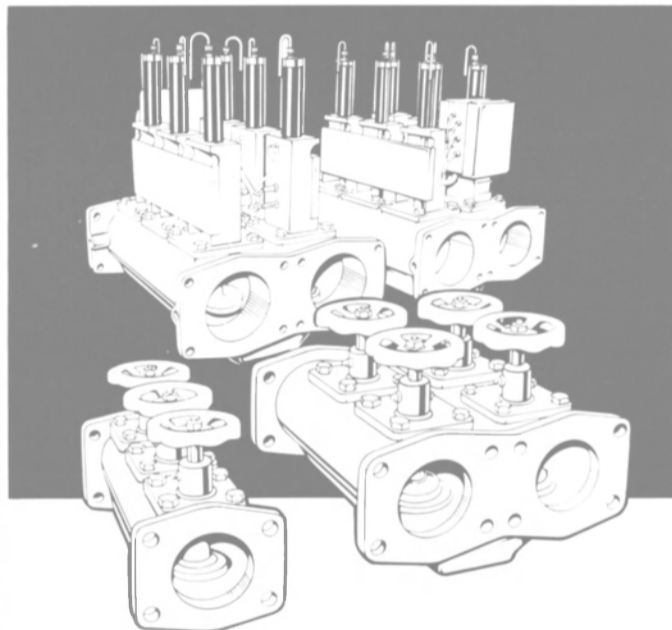
Address: \_\_\_\_\_

Country: \_\_\_\_\_ Tel.: \_\_\_\_\_

**NORGES VAREMESSE**  
NORWEGIAN TRADE FAIR FOUNDATION  
Sjøløysentret - Sjøløys Exhibition Centre  
P.O. Box 130 Skøyen N-0212 Oslo 2, Norway  
Tel. (02) 43 80 80  
Telex 78748 messe n Teletex (02) 43 19 14

Circle 261 on Reader Service Card

## ULSTEIN VALVE MANIFOLDS



Delivered in several models, both as change-over valve manifolds and bilge-water valve manifolds.

Our compact designs have wide ranges of applications, each unit manufactured is pressured tested.

Ulstein valve manifolds are delivered with manual or remote control, with - or without gasket and flanges.



Manufactured by:  
**ULSTEIN PROPELLER A.S.**  
Ulstein, N-6065 Ulsteinvik, Norway  
Tel.: 47 / 70 / 10 050. Telex 42 342  
SUBSIDIARIES:  
Ulstein (UK), Edinburgh, telex 72 73 83  
Ulstein (Singapore), Singapore, telex 24 484  
Ulstein Maritime, Vancouver, telex 43 54 799  
Ulstein Schiffstechnik, Hamburg, Teletex (17) 40 32 43 - ULSTEIN  
Ulstein Inc., New Orleans (USA)  
Ulstein Asia Ltd., Hong Kong, telex 73 022 norge

Circle 335 on Reader Service Card

## \$402.5-Million Contract To Litton Systems For Amphibious Assault Ship

Litton Systems Incorporated, Ingalls Shipbuilding Division, Pascagoula, Miss., is being awarded a \$402,494,000 fixed-price-incentive contract for construction of 1 LHD-1 class multipurpose amphibious assault ship. The contract also contains priced options for an FY-88 ship and FY-89 ship. Work will be performed in Pascagoula, and is expected to be completed in April 1992. Five bids were solicited and four offers were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-86-C-2005).

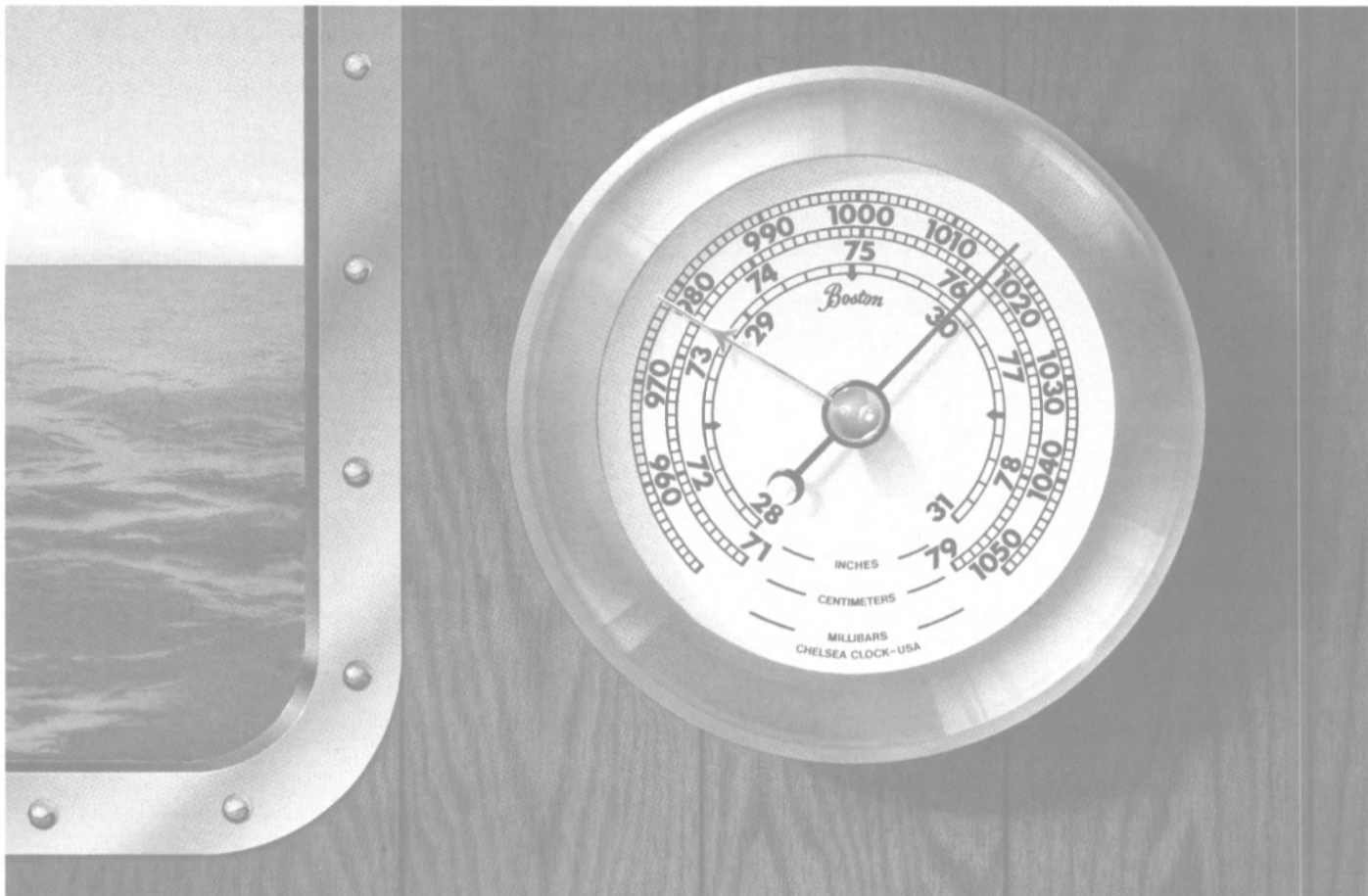
## Lloyd's Reports Another Monthly Decrease In Laid-Up Tanker Tonnage

For the 13th successive month, idle tankers have showed a marked improvement. The latest report published by Lloyd's of London Press shows that despite a rise in the number of vessels mothballed, more than a million tons has been reduced from the total, leaving 1,075 vessels of 29.88 million dwt compared with 1,061 vessels of 31.22 million dwt in August.

The tanker figure on September 1 stood at 196 vessels of 20.41 million dwt against 197 vessels of 21.88 million dwt in August. This figure includes 51 U/VLCCs of 15.63 million dwt, representing 76 percent of the tanker tonnage and 52 percent of the overall total.

Maritime Reporter/Engineering News





## ZF proposes a sporting wager We bet this Boston Barometer you can't tell us how many standard models of marine gears ZF makes

Here's a hint: ZF makes more standard models of marine transmissions for pleasurecraft and commercial boats than any other manufacturer in the world.

### **We have lightweight rugged marine gears for virtually any application**

Whether you design, build or pilot boats, ZF has a quality marine gear to fit your application.

We offer a large selection of standard marine gears for most pleasurecraft applications as well as virtually all sizes and types of commercial, work, push and utility boats.

Or we can design and build a marine gear to your exact specifications at a very competitive price.

Whichever way you choose to go—standard or custom—you can count on ZF marine gears to give you the best value.

ZF marine gears are designed to operate with all of today's major brands of marine diesel engines, and many can be specified with either lightweight alloy or cast iron housings.

ZF marine gears are also technologically superior. They are built to specifications that go well beyond accepted standards, using only the highest quality materials. So they perform reliably, quietly and economically.

ZF marine gears can be outfitted with a wide variety of options as well, such as an integrated trailing pump, power take-offs, trolling valves or a U-drive mounting arrangement.

But perhaps best of all, ZF marine gears cost no more to specify.

**For a free copy of *A Guide to ZF Marine Transmissions*, as well as the opportunity to win a Boston Barometer, write the number of standard models of marine gears ZF makes on your business card or letterhead and send it to:**



**ZF of North America**  
Marine Department  
500 Barclay Blvd.  
Lincolnshire, IL 60069  
(312) 634-3500  
Telex: 240735 ZF NA UR

**It costs no more to specify the best—ZF**

ZF/NA4

All entries must be received before 1/31/87. One entry per person. Everyone submitting the correct answer will be awarded a Boston Barometer; approximate retail value \$119. No purchase necessary. Void where prohibited. Winners will be notified by phone no later than 2/28/87. Tax on prizes responsibility of winners. ZF not responsible for late, lost or misdirected entries. Prizes not transferable.

# PROPULSION

## UPDATE

### SWDiesel's SW 280 V-12 Engine Passes Tilt Performance Test

—Literature Available—

SWDiesel's SW 280 engine meets the operating capability required for mobile offshore installations, and is said to have been the first engine to pass a performance test in the output range from 2,000 to 8,000 bhp under conditions where inclinations to the horizontal and vertical axis of as much as 35 degrees are experienced.

One of the major features of life aboard ships and other floating installations is that in the case of emergencies the demand for energy becomes critical, as any lack of energy means that the vessel is at the mercy of the elements. Analyses of

recent accidents with offshore installations and ships have shown that life at sea could have been saved if the power generator sets had stayed operational despite being subjected to considerable angles of inclination.

The SWDiesel SW 280 engine, which is built in several configurations—6, 8, and 9 cylinders in-line and 12, 16, and 18 cylinders in Vee form—and has a power range of 2,000 to 8,000 bhp, is well suited to these applications. To qualify for use in generating sets for mobile offshore installations, the engine was subjected to an inclination test at an

angle of 33 degrees in the longitudinal direction and 15 degrees in the transverse direction, resulting in an angle in the longitudinal direction of 35 degrees. In this tilting position the engine had to be in operation for 12 hours at a full load and at maximum speed.

The test was conducted with a 12-cylinder SW 280 Vee engine. The thrust bearing of the crankshaft, which plays a very important role under these conditions, was loaded with an additional force, simulating the load exerted by an 18-cylinder SW 280 crankshaft on the thrust bearing.

The test program comprised a startup, operation, and shutdown,

and a test at full load and maximum running speed for 12 hours. During the last six hours these tests were witnessed by officials from the American Bureau of Shipping, Bureau Veritas, Det norske Veritas, Germanischer Lloyd, and Lloyd's Register of Shipping.

The successful results of the inclination test proved the SW 280 to be reliable even under the worst of conditions under full load and at maximum speed. Consequently, it was given type approval for use in mobile offshore generating sets.

For full technical details and free literature on the SW 280 engine,

Circle 92 on Reader Service Card



Principals at first 86-87 meeting of N.Y. Metropolitan Section included (L to R): **Bruce Rosenblatt**, Papers Committee chairman; **Alan R. Reid** of MSC, author; **George F. Chandler III**, section chairman for coming season; and **John H. Higginbotham**, immediate past chairman.

### Hospital Ship Conversions By NASSCO Topic At New York SNAME Meeting

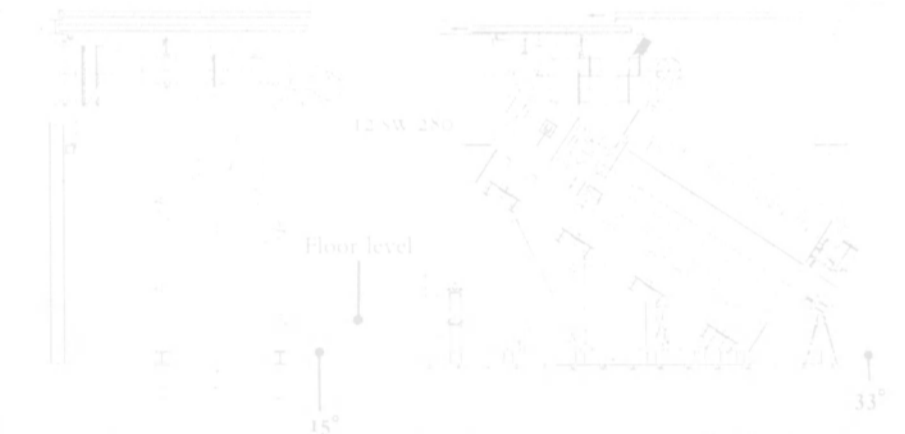
The first meeting of the 86-87 season for the New York Metropolitan Section of The Society of Naval Architects and Marine Engineers heard a paper titled "Conversion of San Clemente Class Tankers to Hospital Ships for the U.S. Navy," by **Alan R. Reid** and **David S.**

**Huff** of the Military Sealift Command, and **John C. Cameron** of the Naval Sea Systems Command.


Two San Clemente Class tankers are being converted to T-AH-19 Class hospital ships by National Steel and Shipbuilding Company in San Diego. When delivered to the U.S. Navy in late 1986 and early 1987, these ships will each provide a rapidly deployable, 1,000-bed acute medical care facility to support Marine Corps forces. The design retains existing main propulsion systems and adds new equipment, systems, and facilities to support patient, medical staff, and crew requirements.

For these conversions, NASSCO has revised both engineering and production techniques. As a result, an early delivery for each ship is projected. When delivered the ships, to be named Mercy and Comfort, will be operated by the Military Sealift Command, with the medical facility manned by Navy personnel.

The most dramatic modifications have occurred in the area of the addition of the Medical Treatment Facility. To accomplish this, the existing cargo holds were modified by the addition of new platform decks for crew living, hospital wards, and support spaces. The bridge and its equipment are from the original installation, which was removed from the aft house and relocated to the 04 level forward. This was done to meet visibility requirements, while retention of the original structure and equipment was for cost savings.



A 12 SW 280 under test at a very steep angle, imitating an emergency situation in which the engines are subject to very heavy listing.




## OUT TO SEA DOESN'T HAVE TO MEAN OUT OF TOUCH.

Simply use AT&T High Seas Calling. High Seas Calling lets you conduct business at the helm when your associates or clients are on shore. It works shore to ship too. And a High Seas phone call can average just \$4.98 per minute\* for a 10-minute call.

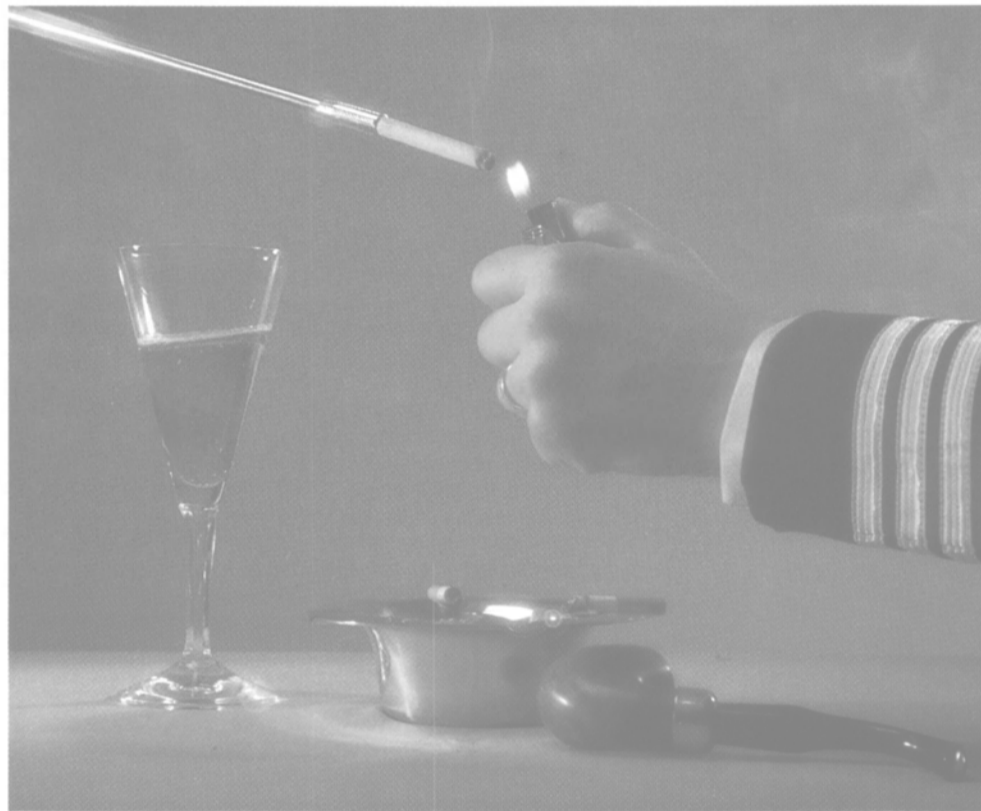
High Seas Calling is very easy to use. It's reliable, using AT&T Operators to service your calls. And it gives you fine quality transmission. So dial 1 800 SEA CALL for further details or for our free brochure. Our toll-free number puts you in touch with ways to keep in touch.

\*Federal excise tax of 3% may apply.


AT&T  
The right choice.

© 1985 AT&T Communications

# DINNER ON THE JUBILEE WOULDN'T BE THE SAME WITHOUT US



You won't see our name on the guest list for the Captain's table, but we're there. Every evening. In fact, without us the atmosphere at table would probably be insupportable.

Because the Jubilee is just one of the many luxury cruise ships whose design wisely incorporates a Flakt Climate Control system. A system designed to maintain the perfect climate on board, regardless of the ambient temperature and humidity. Using the latest energy recovery techniques to give tangible cost savings. And our systems don't only contribute to passenger comfort, they create a safe working environ-

ment for the crew and for vital equipment from the engine room to the bridge and from the kitchens through to the living quarters.

We've been specialists in climate control and ventilation for half a century. We understand your requirements. And we understand that your needs tomorrow will be different from those today. Which is why we are pleased to boast the world's largest R&D organization devoted solely to air treatment and climate control. That's one reason why Flakt solutions are always so innovative.

**Flakt**  
Marine AB

**FOR THAT BREATH OF FRESH AIR**

P.O. BOX 8862, S-402 72 GOTHENBURG, SWEDEN. TEL. INT +46-31 22 20 60.

ARGENTINA · AUSTRALIA · AUSTRIA · BELGIUM & LUXEMBOURG · BRAZIL  
CANADA · CHILE · DENMARK · EGYPT · FEDERAL REPUBLIC OF GERMANY · FINLAND  
FRANCE · GREECE · HONG KONG · INDIA · ITALY · JAPAN · THE NETHERLANDS  
NORWAY · PAKISTAN · PEOPLE'S REPUBLIC OF CHINA · PORTUGAL · REPUBLIC OF KOREA  
REPUBLIC OF SINGAPORE · SPAIN · SWEDEN · TAIWAN · TURKEY · UNITED KINGDOM  
UNITED STATES · VENEZUELA · YUGOSLAVIA

Circle 325 on Reader Service Card

Tell me why so many leading cruise ships use Flakt systems. **MR**

NAME

POSITION

COMPANY

ADDRESS

COUNTRY



Tanker Exxon Valdez at pier in National Steel yard prior to recent christening.

## First Of Two Big Exxon Tankers Christened At National Steel Yard

A christening ceremony was held recently for the Exxon Valdez, the first of two 209,000-dwt tankers being constructed for Exxon Shipping Company (NASSCO) in San Diego



Principals at christening ceremony included (L to R): **William J. Deasy**, president of Morrison-Knudsen Corporation; **John Devens**, mayor of the City of Valdez, Alaska; **Randall Meyer**, president of Exxon Company U.S.A.; **Dr. Margaret MacVicar**, sponsor; **Richard H. Vortmann**, president of NASSCO; **Cdr. James Boyd**, chaplain, Naval Amphibious Base, Coronado; and **Frank Iarossi**, president of Exxon Shipping Company, Houston.

## IMA To Publish Assessment Of Future U.S. Marine Market Growth —Commercial And Naval—

A 200+ page report providing the most comprehensive assessment yet made of the marine market will be published in December by International Maritime Associates, Inc. The report assesses the growth to occur in the future U.S. commercial marine and naval market. Its intended users are marketing managers and business planners. Information in the report will provide an invaluable reference for setting market priorities and developing three-to-five year business plans.

Each of 23 market segments is covered. These segments include coastal tankers, specialty ships, fer-

ries, offshore rigs, naval ships, Army craft . . . The report examines current business conditions, potential developments, future construction and maintenance demand and projected equipment requirements. Key points of buying control, buy American rules and likely competitors are identified.

IMA's report is the result of more than a year of research. It is available for \$350 and can be obtained by contacting International Maritime Associates, Inc., 3050 K Street, NW, Suite 345, Washington, DC 20007; telephone (202) 333-8501.

Company of Houston. These Alaska Class tankers are the largest ships ever built on the West Coast, with a length of 987 feet, beam of 166 feet, depth of 88 feet, and fully loaded draft of 64.5 feet. Propulsion is provided by a slow-speed IHI/Sulzer 8RTA84 diesel engine with an output of 32,240 bhp; service speed is 16.5 knots.

Sponsor of the new VLCC was **Dr. Margaret L.A. MacVicar**, Dean for Undergraduate Education at MIT, vice president of the Carnegie Institute in Washington, and a member of the Exxon board of directors. **Randall Meyer**, president of Exxon Company U.S.A. was the principal speaker at the ceremony. Other participants included **Ulyesse J. LeGrange**, senior vice president, and **Joe T. McMillan**, senior vice president, Exxon Company U.S.A.; **Frank J. Iarossi**, president of Exxon Shipping Com-

pany; and **Richard H. Vortmann**, president of NASSCO.

Also present were Hon. **Jim Bates** and Hon. **Bill Lowery**, U.S. House of Representatives. **Alfred W. Lutter Jr.**, senior vice president-marketing and business affairs for NASSCO, assisted as master of ceremonies.

The Exxon Valdez will transport 1.5 million barrels of crude oil per voyage from Valdez, Alaska, to Panama for transshipment to the U.S. Gulf and East Coasts. Due to her large size, the fuel-efficient diesel engine, and a high degree of automation, the new vessels will enable Exxon Shipping to establish a new level of efficiency in the transportation of Alaskan crude.

The Alaska Class tankers are designed with the most modern equipment available, and will meet the latest safety and environmental protection standards, including a protectively located clean segregated ballast system, inert gas system, safeguards to prevent pumping of oily waste into the sea, sewage treatment system, collision-avoidance radar, and a back-up steering system. The ships will also meet the latest regulations of the Safety of Life at Sea Conventions.

For free literature detailing the facilities and capabilities of NASSCO,

Circle 58 on Reader Service Card

## PERFORMANCE with RELIABILITY

Built in Singapore, this modern fast patrol boat uses STEWART & STEVENSON diesel engines teamed with ARNESON SURFACE DRIVES™ for state-of-the-art performance in an ultra-efficient package. Specified by designers and builders worldwide where reliability and performance are serious concerns, STEWART & STEVENSON DIESELDRIVE™ engines with ARNESON SURFACE DRIVES offer features unequaled by any other propulsion system.

Based upon the famous General Motors Detroit Diesel Allison engines, STEWART & STEVENSON apply their sophisticated engineering to produce a range of DIESELDRIVE engines from 165 to 2200 HP. DIESELDRIVE engines have been the leader in their field since the beginning for dependability, safety and economy.

ARNESON SURFACE DRIVES deliver impressive performance for commercial, pleasure and government vessels using gasoline, diesel or gas turbine engines up to 5000 HP. For your local distributor or additional information contact.

ARNESON SURFACE DRIVE



VOSPER 21M HIGH SPEED PATROL BOAT

LOA: 21 METERS (68'-11") • ENGINES: TWO STEWART & STEVENSON 16V-92MTIB (1350 BHP @ 2300 RPM) • SPRINT SPEED: 40+ KNOTS • ARNESON SURFACE DRIVES: TWO MODEL ASD 14 WITH 3-BLADE SURFACE-PIERCING PROPELLERS



**ARNESON MARINE, INC.**  
15 Koch Road, Unit E  
Corte Madera, CA 94925-1214 USA  
Phone: (415) 927-1500  
Telex: 171 242 Arneson Drive  
FAX: (415) 927-1937



**STEWART & STEVENSON SERVICES, INC.**  
P.O. Box 1637  
Houston, TX 77251-1637 USA  
Phone: (713) 868-7700  
Telex: 794221 SNSCPW HOU

## Saari Named Secretary Of Maritime Administration And Maritime Subsidy Board

Maritime Administrator **John Gaughan** has announced the appointment of **James E. Saari** as Secretary of the Maritime Administration and the Maritime Subsidy Board.

Mr. Saari was most recently a consultant on maritime matters to the law firm of Kominers, Fort, Schelfer & Boyer. He previously served as general counsel at WFI Industries, Inc., a shipbuilding and marine transportation company, and assistant chief counsel for MarAd.

## Si-Tex Model 850 Offers Economy And Efficiency In VHF Communications



Si-Tex Model 850 Radiotelephone.

The Si-Tex 850 VHF/FM marine radiotelephone combines solid-state, fully synthesized construction in a compact, high-performance yet economical unit. It transmits 49 and receives 68 channels, including nine weather channels. Large digital LCD readouts display channel selection.

A membrane-protected, keypad-control panel incorporates transmit/receive channel selection, all-channel scan (seek), channel 16 priority, Hi/Low (25/1) power transmission, and weather channel selection. The unit includes front-mounted microphone plus jack for external speaker.

For full information and free literature on the Si-Tex 850,

Circle 70 on Reader Service Card

## MarAd Approves Title XI For Cruise Vessel Costing \$11.9 Million

The Maritime Administration has approved in principle an application from Liberty Cruise Lines, Inc., a wholly owned subsidiary of Windsor, Inc., of St. Louis, Mo., to aid in financing of construction of one passenger cruise vessel.

The cruise vessel will have an approximate overall length of 247 feet, a molded beam of 40 feet, and will be able to accommodate 140 passengers. The planned itineraries for the vessel include ports on the East Coast of the United States and the U.S. Virgin Islands.

Although a builder has not yet been named, the company indicated in its application that it is negotiating with several prospective shipbuilders. The desired delivery date is in spring 1988.

The approved Title XI guarantee covers \$8,962,000 or about 75 percent of the actual cost of \$11,949,865. It does not cover construction period financing, for which Liberty Cruise Lines said it had made private arrangements.

## Resistoflex Offers Free Literature On High Performance Fluid Systems

Resistoflex, a recognized leader in the aerospace industry, now offers its high-performance fluid connectors for military marine use.

From initial design to actual in-

stallation, Resistoflex integrates high technology with operational requirements to meet high-temperature, high-pressure, no-leak demands of fluid systems. Resistoflex's Dynatube® Teflon hose assemblies and Dynatube® pipe and tube fittings have successfully passed testing to Mil-S-901C(1) shock tests (high impact shipboard machinery equipment and systems); Mil-STD 167/1 mechanical vibrations of shipboard equipment (Type

I Environmental and Type II Internally Excited); and MIL-STD-810C environmental test methods (salt spray corrosion, etc.).

Specified as the standard separable fluid connector on the UniDynamics Armored Box Launcher Weapon System, the Resistoflex Dynatube® fitting stands ready to demonstrate its performance characteristics when attached to Teflon hose, rigid tubing, or pipe.

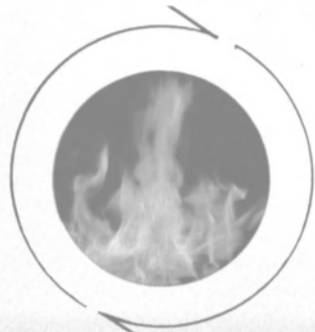
Whatever the specific project, Re-

sistoflex invites your inquiry and welcomes the opportunity to demonstrate the many advantages of Dynatube fittings.

Resistoflex recently announced the relocation of their entire Roseland, N.J., facility to 2575 West 5th Street, Jacksonville, Fla., 32205, effective January 1, 1987.

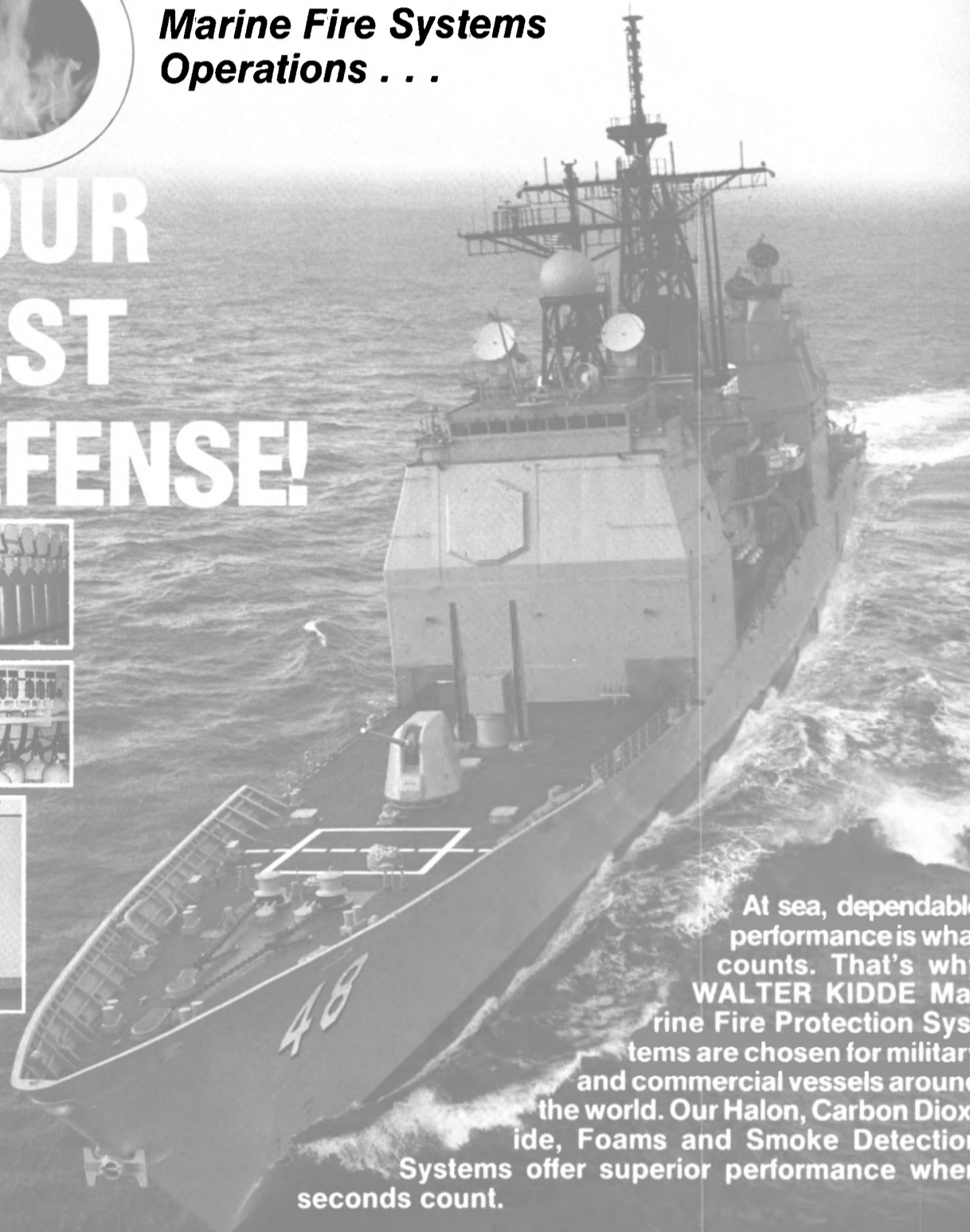
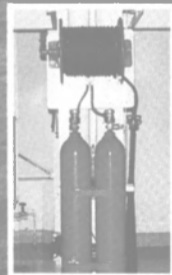
For more information and free literature,

Circle 29 on Reader Service Card



## WALTER KIDDE Marine Fire Systems Operations . . .

# YOUR BEST DEFENSE!



At sea, dependable performance is what counts. That's why WALTER KIDDE Marine Fire Protection Systems are chosen for military and commercial vessels around the world. Our Halon, Carbon Dioxide, Foams and Smoke Detection Systems offer superior performance when seconds count.

**WALTER KIDDE THE MARINE FIRE PROTECTION EXPERTS.**  
Walter Kidde Drive, Wake Forest, N.C. 27587, U.S.A. (919) 556-6811, Telex: 802569 WALKIDDE

Circle 30 on Reader Service Card

## \$12-Million Contract To Colonnas' Shipyards For Ship Maintenance

Colonnas' Shipyards Incorporated, Norfolk, Va, is being awarded a \$11,961,478 fixed price contract with economic price adjustment for the Major Maintenance Availabili-

ties (MMA's) of U.S. Coast Guard ships Durable and Courageous with options for the MMA's of nine other cutters. Work will be performed in Norfolk, and is expected to be completed December 17, 1987. Forty-five bids were solicited and eleven were received. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-H-8134).

# PROPULSION UPDATE

## Perkins Introduces Compact V-8 Diesel Designed By Rolls-Royce

—Free Literature Offered—

Perkins North America of Wayne, Mich., recently introduced an exceptionally compact, Rolls-Royce-designed engine as part of a major entry into the commercial marine diesel market. The new 8HD400T design is an 8-cylinder, V-form engine that develops 400 bhp at 1,800 rpm. It is a member of the Rolls-Royce line of diesels that Perkins has introduced in the U.S. and Canada.

Perkins has also introduced other members of its HD family of 4-, 6-, 8-, and 12-cylinder commercial engines that provide economical and efficient performance for the commercial and fishing vessel markets. The Rolls-Royce line comprises eight engines with outputs ranging from 210 to 800 bhp in both naturally aspirated and turbocharged versions. Only two models are currently available in North America—the 8HD and a 12-cylinder line introduced last year.

The first U.S. installation of the Perkins/Rolls-Royce 12-cylinder marine diesels is in the twin-screw catamaran Bottom Time II delivered recently by Atlantic and Gulf Boat Builders of Fort Lauderdale, Fla., to Bottom Time Adventures. Each of the twin CV12 engines provides 800 bhp at 2,100 rpm.

With the addition of the Rolls-Royce models, Perkins offers 10 marine diesel engines ranging from 51 to 800 bhp, suitable for main pro-

pulsion as well as auxiliary power in a wide variety of vessels, including workboats, patrol and customs vessels, ferries, trawlers and other fishing vessels, rescue craft, and offshore supply boats.

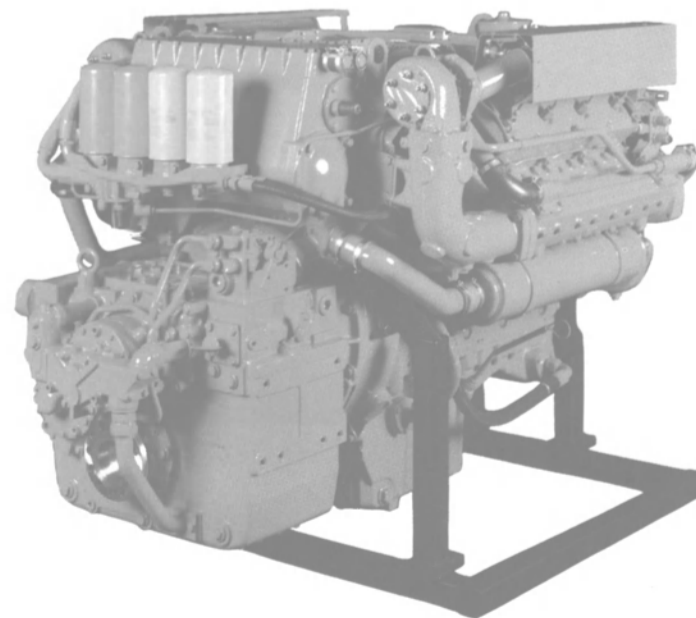
These diesels are also suitable for generator sets to provide electrical power for air conditioning, refrigeration, lighting, and other on-board applications. They are also used in shoreside cargo-handling vehicles.

The 8HD engine was developed in cooperation with the British Royal Navy. This diesel represents the first coordination of the design talents of engineers at both the Perkins plant in Peterborough, England, and the former Rolls-Royce factory in Shrewsbury.

The lightweight 8HD, with good power-to-weight ratio, is a low-profile engine designed for many applications in commercial craft. Its compact size allows for smaller engine rooms, providing more space for cargo or accommodations, as well as greater flexibility in vessel design.

The 8HD's major benefit is said to be its outstanding fuel efficiency, coupled with ease of routine maintenance. Available options include a power takeoff unit, keel cooling, and change-over filters. This new engine complements the 12-cylinder Rolls-Royce design introduced last year. The 12HD610T diesel is a 60-degree V-form, water-cooled engine that provides 735 bhp at 2,100 rpm for

(continued)



New Rolls-Royce-designed 8HD400T diesel, introduced in North America recently by Perkins, has an output of 400 bhp at 1,800 rpm.

# 100% OIL-FREE AIR

## for Shipboard Service

### Pur-Pax® Air Compressors

- forced air cooling system (bare compressor shown)
- completely self-balanced\*
- vibration-free
- heavy duty—up to 104 CFM/125 PSIG

Pur-Pax® 100% oil-free compressors feature Dyna-Balance® - the unique design for complete balancing of inertia forces resulting in a virtually vibration-free installation. For further information on the full line of Pur-Pax air compressors and complete air systems for shipboard applications, call or write today.  
\*Dyna-balance® models feature the Braun linear drive design.

## Squire-Cogswell Company

3411 Commercial Avenue  
Northbrook, Illinois 60062  
312/272-8900 TWX 910/686-0657

Circle 255 on Reader Service Card

## SURVIVAL SUITS

by  
SURVIVAL INTERNATIONAL, INC.

**THE INDUSTRY LEADER**

- BEST DESIGNED
- HIGHEST QUALITY
- LOWEST COSTS

Write Today For Information  
Survival International  
7859 S. 180 St. Kent, WA 98032  
(206) 251-8880

Circle 137 on Reader Service Card

## MUSEUM MODELS™™™

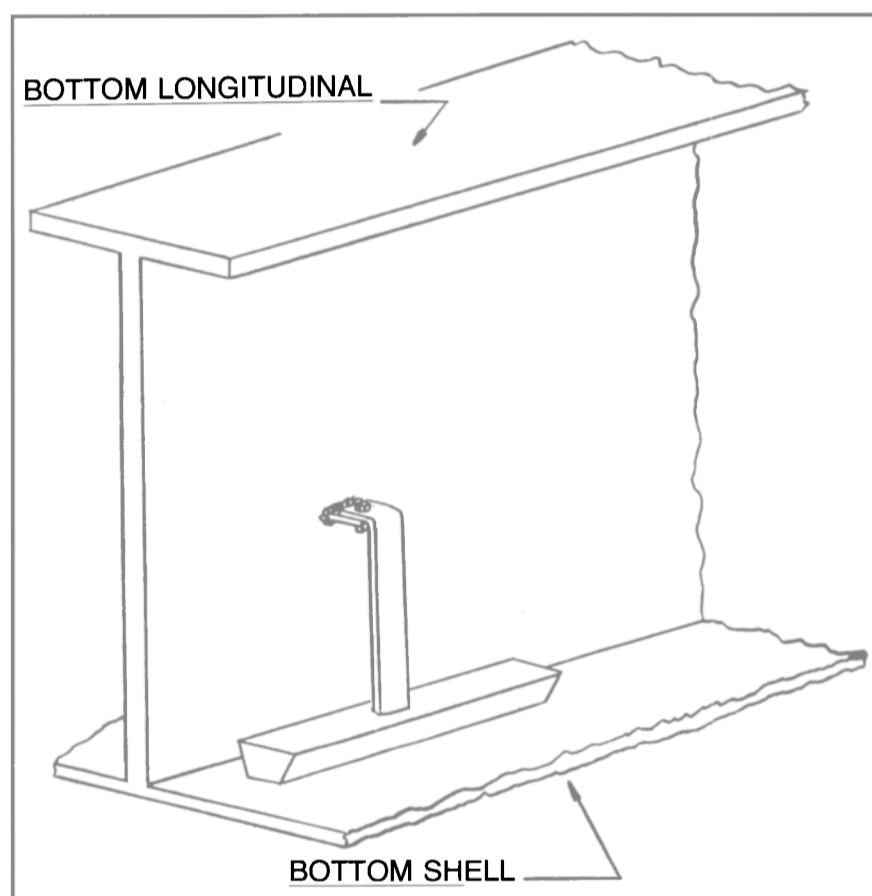
WITH 20 YEARS OF EXPERIENCE AND TECHNOLOGY, WE'VE BUILT AN WORLDWIDE REPUTATION AS LEADING MAKERS OF ALL KINDS OF SHIPS AND OFFSHORE STRUCTURE MODELS.

ORIENTAL INDUSTRY CO.  
408-29, SOKYO-DONG, MAPO-KU  
SEOUL, KOREA  
TELEX: OTRISE K22396  
TEL: 323-3654, 9662

Circle 259 on Reader Service Card

# STOP CORROSIVE PITTING IN CARGO TANKS WITH ZINCOLINE PIT-GUARD ANODES

- Specifically designed to prevent pitting attack on inner bottom shell plating in cargo tanks.
- Provides protection of steel during ballast voyages, and during cargo voyages when residual water settles in tank bottom.
- Acts as primary source of protection in bare steel tanks, or excellent back-up in coated tanks.
- Low-cost, long life, mil-spec anodes are easily clamped or welded to bottom longitudinals by crew, riding gang, or shipyard.
- Meets regulatory body requirements.
- Simple and economical method of preserving metal and avoiding costly steel renewals.
- Surveys and design available to suit individual requirements.
- Cost-effective proven results from the corrosion control specialists who introduced the computerized cathodic protection system.
- Next time, specify Wilson Walton Zincoline Pit-Guard Anodes.



## WILSON WALTON INTERNATIONAL



**Wilson, Walton International, Inc.**  
66 Hudson Street  
Hoboken, New Jersey 07030  
(201) 795-2044  
Telex NO. 125919  
Answerback: WALTON HBKN

**Wilson, Walton International Texas, Inc.**  
7102 Navigation  
Houston, Texas 77011  
(713) 923-7230  
(713) 923-7261

**INTERNATIONAL OFFICES:** Argentina, Australia, Curacao, France, Greece, Hong Kong, Italy, Japan, Mexico, Netherlands, Norway, Portugal, Spain, Singapore, United Kingdom, Venezuela.





(Taiwan). These ships will have an overall length of 214.56 feet, beam of 31.5 feet, and full-load displacement of 850 tons. They will be built in the Dutch yard's covered building dock No. 6, with delivery scheduled for mid-88.

Together with the work in progress on two submarines for Taiwan, and the building of three tugboats for Indonesia, this new contract guarantees an almost full workload in Wilton-Fijenoord's Newbuilding Department for the next 18 months.

For free literature on Wilton-Fijenoord facilities and services,

Circle 60 on Reader Service Card

### SWDiesel Offers Chart On Heavy Fuel Designations For Marine Diesel Engines

SWDiesel Gulf, Inc. of Harvey, La., a member of the Stork-Werkspoor Diesel Group, has available a free chart listing fuel denominations and standards. It indicates the BS designations compared with the draft ISO designations and Cimac designations.

The chart also indicates the capabilities of the SWDiesel range of engines regarding their running reliability on low-quality fuel.

For a free copy of the fuel chart,

Circle 41 on Reader Service Card

### Free Literature Offered On Radio Navigator From Robertson-Shipmate



The RS4000 from Robertson-Shipmate.

Robertson-Shipmate recently announced that the RS4000, one of the world's most popular radio navigators, is now available in the U.S. This radio navigator operates on DECCA chains around Western Europe, the Indian Ocean, Japan, Persian Gulf, Northwest Australia and South Africa.

The RS4000 allows for 200 waypoints that can be distributed into nine separate routes, with latitude/longitude conversion built in. The unit has a pre-amp and antenna as standard, although it will also operate with a long wire adaptor.

For free copies of literature fully describing the RS4000 from Robertson-Shipmate,

Circle 71 on Reader Service Card

### New Literature Offered On Chesterton Labyrinth Seals

A.W. Chesterton Co. of Stoneham, Mass., is offering free literature describing the new Chesterton Labyrinth Seal that provides an effective barrier against water or other contaminants that destroy bearings.

The publication states that the

Chesterton Labyrinth Seal consists of a stationary that is pressed into the housing bore with appropriate sized mounting rings and a rotary that is driven on the shaft by Viton O-rings. The close tolerances of these parts ensures effective sealing and efficient operation.

The seal is ideal for use in pumps, motors, compressors, fans, turbines, blowers, mixers, gear boxes, lathes, pillow blocks, etc.

The literature contains an application guide as well as a cutaway illustration that shows how non-contacting rotary and stationary elements restrict flow path and eliminate shaft wear caused by lip seals.

For further information and a free copy of the literature on the Chesterton Labyrinth Seal,

Circle 85 on Reader Service Card



## WORLD SHIP REPAIR EXPERTS

Experts. Those are people you trust with your \$100 million ship. Those are people who meet your deadline and get your ship back to work. People willing to take the extra step.

Experts are the kind of people you'll find at the Portland Ship repair Yard in Portland, Oregon, U.S.A.

Project managers and welders. Riggers and superintendents. Crane operators and dock masters. These experts work with the most modern shipyard facilities in the world to bring your

job out on-time and on-budget.

Our experience proves it. We work for the Navy and the Coast Guard; cruise ship lines and tankers, foreign flag vessels and heavy fabrication projects. And they keep coming back. Because they like dealing with experts.

Talk to the experts. Give us a call. Or see us at Booth 909 and 911 at the SNAME International Maritime Exposition in New York City in November.

### PORTLAND SHIP REPAIR YARD

**Dillingham Ship Repair**  
(503) 285-1111

**Lockport Marine Services**  
(503) 286-7623

**Northwest Marine Iron Works**

(503) 285-7557  
toll-free (800) 547-4782

5555 N. Channel Avenue  
Portland, Oregon U.S.A.  
97217

In the continental U.S. (outside Oregon) call toll-free (800) 547-8411 or (503) 231-5000.

Circle 345 on Reader Service Card



USS Bunker Hill (CG-52) is fifth in series of advanced Aegis cruisers built by Ingalls.

## Fifth Aegis Cruiser 'Bunker Hill' Commissioned In Boston Ceremony

The U.S. Navy's fifth Aegis guided-missile cruiser built by Ingalls Shipbuilding division of Litton was commissioned USS Bunker Hill (CG-52) in Boston, just a short distance from the Revolutionary War battle site for which the ship is named.

Senator **Edward M. Kennedy** (D-MA) was the principal speaker at the ceremony held in the Charleston Naval Shipyard, during which the Bunker Hill was commissioned into the Pacific Fleet. Other speakers at the ceremony included Vice Adm. **William H. Rowden**, USN, Commander, Naval Sea Systems Command; Vice Adm. **Joseph Metcalf III**, USN, Deputy Chief of Naval Operations, Surface Warfare; Vice Adm. **George W. Davis Jr.**, USN, Commander Naval Surface Force, Pacific Fleet; and **Jerry St. Pé**, president of Ingalls Shipbuilding.

The Bunker Hill is the first U.S. surface warship to be equipped with the below-deck, advanced MK 41 Vertical Launching System (VLS), a multiwarfare missile-launching system capable of striking targets in the air, on and under the ocean surface, and on land. The cruiser is also equipped with the advanced Aegis weapons system, the most capable shipboard air defense radar system in the world.

Four General Electric gas turbine engines, each with an output of 20,000 shp, will drive the ship at speeds in excess of 30 knots. The CG-52 carries a complement of 29 officers and 360 crewmen.

For free literature detailing the shipbuilding services and facilities offered by Ingalls Shipbuilding,

Circle 10 on Reader Service Card



The modules were moved by crawlers over a specially prepared roadway to a loading dock leading onto the barges as each was positioned on Dry Dock 4.

## Drydock Used To Load Alaskan Modules Out Of Portland Shipyard

Seven Alaskan oil modules, constructed for ARCO Oil and Gas Company by Daniel International at the Portland Ship Repair Yard, were loaded aboard three ocean barges last week utilizing the shipyard's huge Dry Dock 4.

The modules, the heaviest totaling 2,800 tons, will be sealifted to Prudhoe Bay for ARCO's Lisburne Oil Field along with other modules constructed at the Oregon ports of Coos Bay and Astoria.

The Portland modules were constructed at a 24-acre site at the shipyard and moved by 2,000-ton-capacity crawlers over a specially pre-

pared 3,000-foot roadway to a loading dock leading onto the 400-foot-long barges as each was positioned on Dry Dock 4.

The method, believed to be the first such loading effort utilizing a drydock, was faster and more cost effective than the dead-lift practice normally used for loading oil modules.

The Port of Portland had allowed four days for loading the seven large modules, and the operation was completed on schedule.

Crowley Maritime Corporation is handling the sealift of Oregon-built modules as well as other modules constructed on the West Coast.

Dry Dock 4, at 982 feet long and 185 feet wide, is the largest floating drydock on the West Coast and third largest in the U.S. It is used for repairing the majority of the Alaskan Oil Fleet.

For more information on the Port of Portland,

Circle 21 on Reader Service Card

# WILLCOX HOSE

THE ORIGINAL MANUFACTURERS OF COMPOSITE HOSE

## CARGO HOSE

- Flexible
- Easy Handling
- Suction or 200 psi Pressure
- Solvent & Chemical Use
- Cost Effective
- Sizes to 10" I.D.

## WILLCOX

North America, Inc.  
P.O. Box 484  
Garfield, NJ 07026  
(201) 340-2313

## SHIP/SHORE INSULATING FLANGE

- IMO Recommended
- Cast Nylon or PTFE Lined
- Offset bolt pattern for foolproof installation
- 4" through 16" I.D.

Circle 32 on Reader Service Card

## Villani Named Operations Manager-North America For Zim-American Israeli Line

Capt. **Yoel Yanai**, senior vice president of operations for Zim-American Israeli Shipping Company, one of the largest steamship companies in the world, has announced the promotion of **Andrew Villani** to marine operations manager for North America. He joined Zim in 1979 as assistant manager of marine operations for North America. He is graduate of the U.S. Maritime Academy.

Zim operates more than 70 vessels calling at some 250 ports worldwide. Zim-American is the largest of four divisions that comprise Zim Israel Navigation Company.

## Ship Operating Subsidies Not Subject To Budget Cutting Constraints

The across-the-board cuts, or "sequestrations" mandated by the Gramm-Rudman-Hollings deficit reduction act do not apply to ship operating subsidies, according to the Office of Management and Budget.

Responding to a request from House Merchant Marine and Fisheries Committee chairman **Walter B. Jones**, OMB director **James Miller III** stated: "The basis for our determination that the ODS program is exempt from sequestration is that the obligations to make ODS payments occurred at the time these contracts were signed." Mr. Miller explained that under Section 256 (1) of G-R-H, obligated balances are exempt from sequestration.

## Heavy-Lift And Ship-Repair Project Begins At PSRY —Literature Available

Portland Ship Repair Yard (PSRY), Lampson International, and resident contractors recently began a unique heavy-lift and ship-repair project on the offshore construction crane ship Sarita I, owned by Brown and Root, Inc.

The project involves the one-piece removal and installation of the 300-foot-long main boom weighing 350 tons, and the "A" frame that weighs 150 tons at a reach of over 200 feet. Lampson's Transi-Lift crane, stationed at PSRY, with a capacity of 1,200 tons, is more than a match for the task.

For more information on this project and the world ship repair experts at PSRY,

Circle 34 on Reader Service Card

## NAVSEA Awards \$14-Million Contract To Norden Systems

Norden Systems Incorporated, Norwalk, Conn., is being awarded a \$14,053,284 modification to a previously awarded firm-fixed-price letter contract for materials for the AN/SPS-67(V)1 radar. Work will be performed in Melville, N.Y., and is expected to be completed July 31, 1988. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-85-C-7127).

## Free Color Brochure From Envirovac Describes Vacuum Sewage Systems

A free, eight-page color brochure titled "Envirovac Inc. E-Vac Vacuum Sewage Technology" is being offered by Envirovac Inc. of Rockford, Ill.

The publication discusses and describes E-Vac systems for marine

Circle 333 on Reader Service Card →

use, in airplanes, trains, and in commercial, recreation, industrial and municipal applications. The best type of E-Vac vacuum sewage system and its advantages for each purpose are discussed and the main features of each highlighted.

For example, the basic benefits of E-Vac systems for marine use include: low volume flush—two pints per flush; small diameter piping—1½-inch and 2-inch; vertical lift capability—flush upward to 16 feet;

and piping independent of slope—increased installation flexibility. Other applications are similarly presented.

The brochure points out that E-Vac vacuum sewage systems for marinas offer a sanitary and convenient means for boatowners and operators to empty their sewage holding tanks either automatically or semiautomatically. Sewage is transported from a boat's holding tank through the mains to the vacu-

um central module where it is then automatically pumped to a gravity sewer or treatment plant.

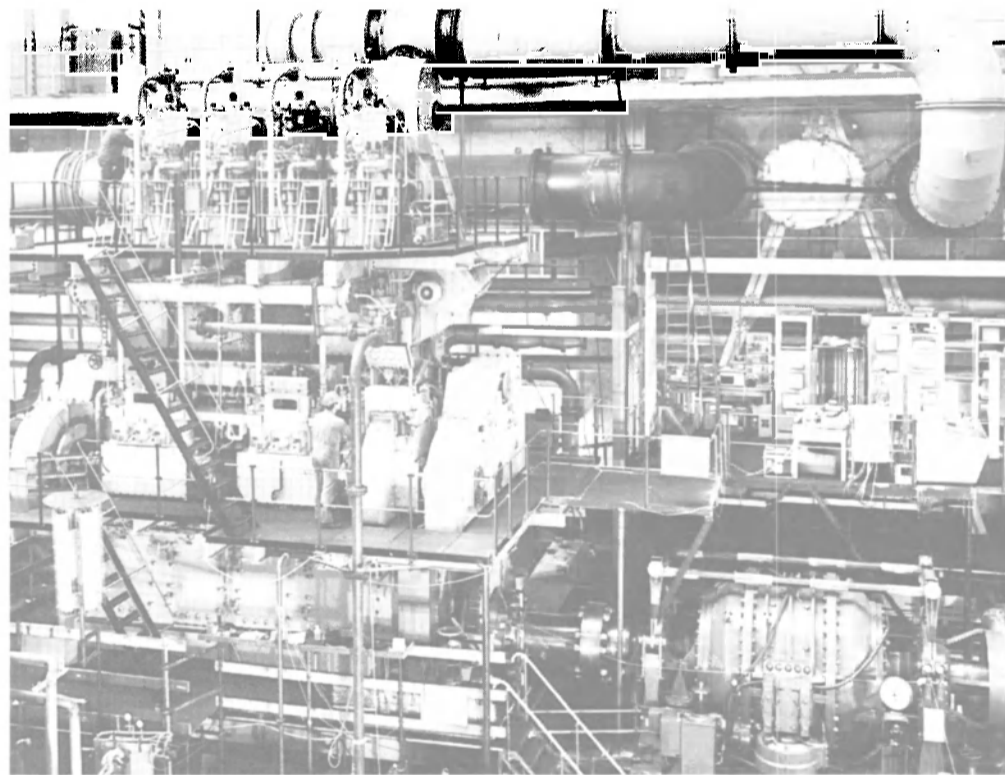
The publication contains a generous amount of striking photos that include vessels, airplanes, trains, marinas, etc., that are equipped with E-Vac systems.

For more information and a copy of the free, eight-page brochure from Envirovac,

Circle 36 on Reader Service Card

# RTTA

## Continuing development for future market needs



4 RTA 62 research engine at the Sulzer Winterthur works.

Leading in  
Diesel Technology

# SULZER<sup>®</sup>

Sulzer Brothers Limited  
CH-8401 Winterthur, Switzerland  
Diesel Engine Division  
Telephone 052-81 11 22  
Telex 896 060 70 szch  
Telefax 052-22 49 17

## World Orderbook For 20 VLCCs At Highest In Seven Years

According to figures compiled by Howard Houlder (Chartering) Ltd. of London, the number of very large

Very large crude carriers under construction or on order		
Owner	Dwt	Yard
Exxon (two)	209,000	NASSCO
Petrofina	260,000	Hyundai
Idemitsu (two)	258,000	Mitsubishi IHI
Iino	250,000	Kawasaki
Japan Line	238,000	IHI
Kawasaki	238,000	Kawasaki
Kyoei/NYK	238,000	IHI
Mitsui OSK	230,000	Sasebo
Mitsui OSK (two)	239,000	Mitsui
Shinwa/Nippo	256,000	Mitsubishi
NYK	256,000	Mitsubishi
NYK	250,000	Mitsubishi
Shinwa	238,000	Hitachi
Shinwa	256,000	Mitsubishi
Tokyo Tankers (two)	256,000	Mitsubishi
World-Wide	250,000	Hyundai

Source: Howard Houlder (Chartering) Ltd.

crude carriers under construction or on order worldwide has reached its highest level for seven years.

The 4.9 million tons deadweight involved represents substantial investment, with open market newbuilding prices running at \$37 million to \$40 million per ship.

Of the 20 VLCCs aggregating 4.9 million dwt on order, seven are under contract to Mitsubishi. The other 13 have been ordered from IHI (3), Hyundai (2), Kawasaki (2), Mitsui (2), National Steel (2), and one each for Hitachi and Sasebo. The two under construction at NASSCO are for Exxon Shipping Company of Houston.

The last VLCC ordering spate saw 20 vessels amounting to 5.8 million tons in mid-1979, but was followed by several years of market recession.

Analysts are now more confident there is a profitable future for large tonnage. Since that time, the global total of ULCCs and VLCCs has

decreased 40 percent to some 116 million tons.

One sign of owners' continuing optimism is that hardly any second-hand VLCCs are available either for trading or demolition sales at present.

### New Owners Will Reorganize Sudmarine Firm

The Dutch company Dietsmann International, through its French subsidiary Dietsmann France A.S., and **Claude Miguet**, managing director of Paoli S.A. of Marseilles, have each acquired 50 percent of the shares of Sudmarine Enterprises S.A. of Marseilles. This transaction ends a 28-month period of uncertainty about the future of Sudmarine, whose owners, the AMREP Group, has been in liquidation since 1984.

Mr. Miguet and Dietsmann president **Peter Kutemann** are optimistic about the future of Sudmarine, and will start restructuring

the company immediately. Mr. Miguet will be managing director in charge of the marine and engine repair facilities, while Mr. Kutemann will be co-managing director responsible for the international maintenance activities of the company.

For additional information on Sudmarine Enterprises,

Circle 37 on Reader Service Card

### Blystad Ships Will Join Stolt-Nielsen Parcel Tanker Fleet Pool

Norwegian shipowner Arne Blystad A/S will participate in the parcel tanker fleet managed by Stolt-Nielsen starting in January 1987, according to a joint announcement by the two companies. Two ships, the 25,000-dwt Lake Anette and Dua Mar, will join at that time, while Blystad will have the option to add two more parcel tankers, the 26,000-dwt Lake Anne and Lake Anina. The addition of these ships will increase the Stolt Tankers parcel carrier pool to 43 ships totaling 1.25 million dwt.

Blystad's participation in the pool will not affect its present or future activities in the worldwide crude oil and products trades, which will be maintained with its own and time-chartered tonnage.

Blystad and Stolt-Nielsen are pioneers in the parcel trade, with a long history of customer service in this unique area of ocean shipping. Other shipowners participating in the Stolt Tankers worldwide parcel tanker services are John Swire & Sons of the U.K.; Societe Francaise de Transports Maritimes, shipping affiliate of the French Worms Group; and Norway-based Cheminvest.

### New Marine Consulting Firm Established—Free Literature Offered

The marine consulting firm of CG International, Inc., Hoboken, N.J., has been established by **Charles H. Gross Jr.** (formerly senior vice president and manager of J.J. Henry Co. Inc.), to provide naval architectural and marine engineering services to domestic and international firms.

Some of the services the company offers include: development of conceptual, guidance, and contract design packages for new construction and conversion programs; liaison with U.S. Coast Guard for registry transfers and foreign newbuildings; review and approval of detailed working plans; on-site construction supervision; support and production of technical and cost proposals for government procurements; preparation of technical and economic feasibility studies; and analysis of markets for shipboard machinery components and systems.

For free copies of literature on the services offered by the new marine consulting firm CG International,

Circle 51 on Reader Service Card

## INVENTORY LOCATOR SERVICE AND THE MARITIME INDUSTRY...

Inventory Locator Service, Inc., set up an aircraft data base more than seven years ago. Currently, more than 7½ million line items make up that database.

ILS offers parts location, cross-referencing, and extensive NSN information. The world of commercial and military aviation has come to rely on us...the Maritime industry will, too!

ILS can now offer on-line access to:

- procurement histories for price analysis comparison
- part number or NSN number to Federal Supply Code (FSCM)
- FSCM to name of manufacturer
- Management List Consolidated (ML-C)
- Navy P2300 Series (Next Higher Assembly)
- Master Index Allowance Parts List

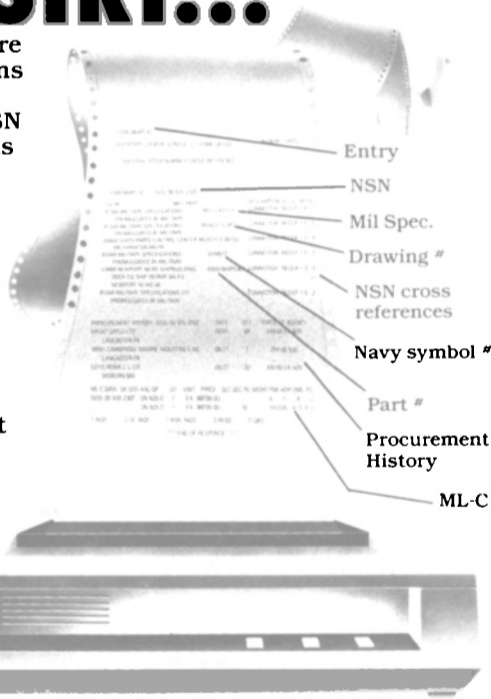
QPL's and Navy Symbol cross referencing will be available before year end. One inquiry using part number, NSN, Mil Spec or Drawing Number can in minutes produce a printout which could take hours or days to manually compile.

Let Inventory Locator Service, Inc., show you why over 35 DOD facilities and dozens of OEM's have come to rely on our electronic information support system.

**ILS** INVENTORY LOCATOR SERVICE, INC.  
3820 Premier Avenue  
Memphis, TN 38118  
(901) 794-4784-Telex 882179 (WU)

Offices in: California, Florida, New York, Texas, Virginia, Washington, and the United Kingdom.

Circle 225 on Reader Service Card



**JPR**  
CORPORATION

## JIM'S PUMP REPAIR INC.

48-55 36th STREET, LONG ISLAND CITY, NEW YORK 11101

JIM LAGONIKOS, *President* Established 1974 Bob Mooney, *Sales & Service Mgr.*

### Reconditioned Coffin & Pacific Feed Pumps

Service  
24 HRS  
718-392-4444

A-1 Condition  
TYPE • F-CG - DE - DEB - IND - T  
TBA • 12 - 16 - 16½

Parts Available  
TLX - TWX  
710-5824847JPRNYK

Circle 195 on Reader Service Card

## Tung Group Gets \$277-Million Loan To Pay For Ships Ready For Delivery In Japan

The C.H. Tung Group of Hong Kong recently completed negotiations for a syndicated loan for \$277 million. These funds are for the purchase of five containerships and seven tankers that have already been completed by Japanese shipyards and are waiting for Tung to take delivery.

The lead participants in the lending syndicate, each providing a reported \$30 million, are Manufacturers Hanover, Bank of Tokyo, Hong Kong and Shanghai Banking Corporation, Bank of China, Standard Chartered Bank, and Industrial Bank of Japan.

According to a Tung spokesman, no dates have been set for accepting delivery of the ships, but acceptance would probably follow a graduated schedule.

## SOLAS Steering Gear Rules Now In Effect For Tankers Of Over 10,000 GT

Provisions of Regulation 29.19, Chapter II-I of the First Set of Amendments to SOLAS 1974 came into force on September 1 this year. This regulation applies to existing tankers, chemical tankers, and gas carriers of 10,000 gt and larger whose keels were laid, or were at a similar stage of construction, prior to September 1, 1984.

Many of these requirements are already in effect for tankers under Regulation 29 of the 1978 Protocol to the SOLAS 1974 Convention. For existing tankers, the following is required in addition to the above requirements of the Protocol: (1) a low-level alarm on each power unit reservoir tank; (2) suitable working access to steering gear machinery and controls, including handrails and gratings or other non-slip surfaces; and (3) a fixed oil storage system.

## Ingersoll-Rand Offers Free Color Brochure On Gas Compressors

Ingersoll-Rand Company is offering a free 16-page full-color brochure entitled "SPACE," (Special Process Air Cooled Equipment) on their line of gas compressors for use in rugged operating environments.

SPACE compressors are compact, low weight, highly durable reciprocating units designed initially for low flow/high pressure applications. Custom engineering of compression cylinders and a selection of frame sizes permit coverage of a broad range of applications. The compressors are available with any combination of two through six cylinders arranged for one to six stages of compression. Units range in physical size from roughly one cubic foot up to 125 cubic feet. Weight can be

held below 10 pounds for the smallest models.

SPACE compressors are applicable for shipboard installation, aircraft onboard and ground support operations and mobile land-based duty.

The brochure features color photographs and drawings of the SPACE compressors.

For a free copy of this brochure from Ingersoll-Rand,

Circle 33 on Reader Service Card

## Thomson-Gordon Offers New Literature On Marine Bearings And Materials

Thomson-Gordon of Burlington, Ontario, Canada, is offering free literature that describes the marine bearings and bearing materials manufactured by the company.

Thordon® tail-shaft bearings are available in three forms for ships and vessels of all sizes: (1) fully finished, water-grooved, cylindrical

bearings; (2) oversized semifinished machinable tube shapes; and (3) radiused and dovetail staves.

Rudder bearings are available in cylindrical form and as radiused, non-grooved staves.

The publication includes a useful check list for specifying marine bearings.

For further information and free copies of the new literature from Thomson-Gordon,

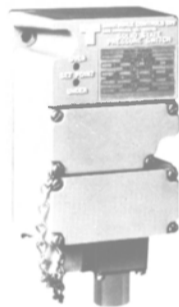
Circle 6 on Reader Service Card

# High-Quality Components for Marine Applications

Shown are only a few of the hundreds of high-quality marine products available from a single source. Designed for a range of shipboard or offshore applications.

### Pressure Switches

Broad choice of electromechanical or solid-state switches to provide shipwide pressure control. Included are diaphragm, bourdon tube and sealed piston types; many are explosion-proof.



### Unique Sounding Tope Ullage Indicator

Self-contained, battery-powered unit is convenient to use in shipboard and offshore tanks.



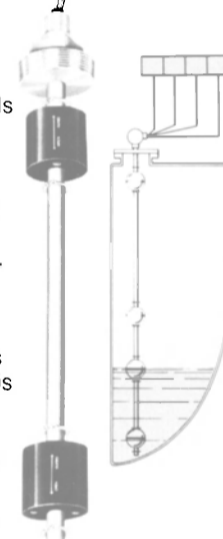
### Pressure Transmitters and Transducers

A group of lightweight transmitters and transducers are ideal for monitoring the 'mechanical health' of shipboard machinery and systems and for gauging tank contents. Included are signal conditioned models and vibration versions for monitoring rotating machinery.



### Single or Multi-Station Level Switches

Ruggedly built for use in liquids from crude to chemicals. Broad choice includes single station with slosh shielding, oil/water interface models, externally mounted styles where access is limited, and multi-station units with up to six stations spaced to suit.



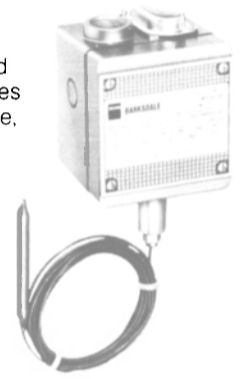
### SureSite Liquid Level Indicators

Bi-colored, interlocking magnetic flags change color as float moves with changing liquid levels. Meet requirements of MIL-I-20037B for indirect reading sight glasses. Withstand shock and vibration. Unlike cloudy, breakable sight glasses, these SureSite Indicators are highly visible, accurate and safe. Used with water, oil, or corrosive, flammable or explosive liquids.



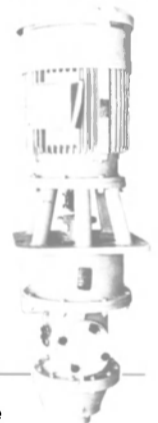
### Temperature Switches

Local mount or remote bulb and capillary switches provide accurate, high-stability temperature control. Ideal for sensing engine manifold, lube oil and ventilation ducts, salt and fresh water cooling.



### Pumps

Axial Multi-Rotor screw pumps are designed for lube and fuel oil service, fuel transfer and hydraulic service on Naval combatant ships and auxiliary vessels. Flow rates to 1250 GPM and pressures to 3000 PSIG with the lowest noise levels available.



Get your FREE 28-page catalog now which describes products shown here as well as dozens more.



Any of the products in this catalog may be supplied from either location shown. Write for your FREE copy of the new catalog or circle the appropriate reader service number

**Transamerica Delaval**

#### For customers in Europe:

Transamerica Instruments Ltd., Marine Dept.  
Lennox Road  
Basingstoke, Hampshire RG22 4AW  
ENGLAND  
Telephone: (0256) 20244.  
Telex: 858103 (CECBAS G)

Circle 219 on Reader Service Card

#### For customers in the U.S. or Far East:

Transamerica Delaval  
Cowles Road  
Plainville, CT 06062 U.S.A.  
(203) 677-1311.  
Telex: 99306

Circle 220 on Reader Service Card

## New Brochure Offered On Tank Washing Machines

Ship and barge operators faced with the need to clean tanks of their chemical and oil tankers, as well as bulk commodity holds, will find comprehensive data on the six-model series of Gamajet III rotary jet tank washing machines in a new full-color, six-page folder recently

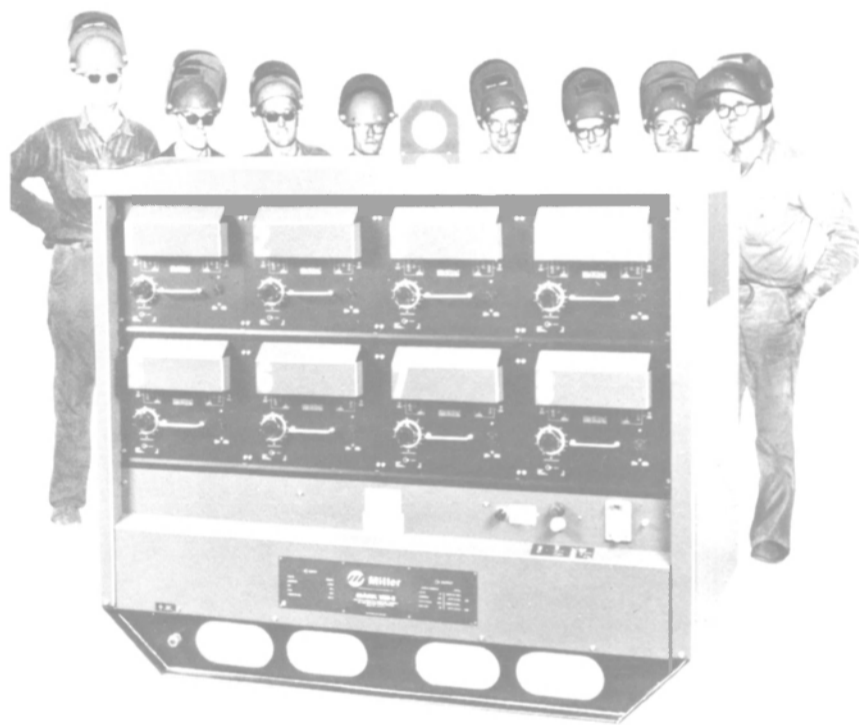
published by Gamajet Equipment Division/Sybron Chemicals Inc. of South San Francisco, Calif.

Useful performance graphs and technical specifications, plus numerous color photos of machines in use, are included.

For free copies of the new publication,

Circle 83 on Reader Service Card

## Eight operators weld from one dc power source...



### Mark VIII-2® system.

This single transformer supplies eight independent, electrically controlled rectifier modules with welding power for these processes:

- SMAW (stick electrode)
- GTAW (TIG)
- ACA (air carbon arc cutting & gouging)

Features of the MARK VIII-2 system include:

- Built-in remote control in each module.
- Individual units can be paralleled.
- Easy to connect to common workpiece
- One duplex 115V ac receptacle provides 10 amp output for job site convenience.
- Single 3 phase input connection.
- 200 amps per module, 60% duty cycle, 340 amp maximum.
- Transports as a single unit.
- Uses less floor space.

Recommended for ... power plant construction and maintenance ... shipbuilding and repairing ... petrochemical plant building and maintenance ... fabrication shops ... training facilities.

Ask for the FREE Mark VIII-2 bulletin. Your Miller Distributor is in the Yellow Pages. Or write Miller Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912.



Circle 347 on Reader Service Card

## Enterprise Marine Completes First Major Ship Repair Contract

—Literature Available—

According to an announcement by co-owners **Joseph Cangelosi** and **Carl McBratney**, their newly formed company, Enterprise Marine and Industrial Repairs, Inc. of Port Newark, N.J., has recently completed its first major ship repair contract involving extensive hull and machinery repairs to the M/V Saint Jean.

The Saint Jean sustained heavy damage to her stern transom plating which required the renewal of 11 plates and all the internals in the way of the plating.

Enterprise Marine chose a modular approach to the repair task, fabricating a large ground assembly to allow for the erection of the vessel's new steel in essentially one unit. In addition to the structural work involved, electrical, mechanical and piping repairs were performed as well. The work, which involved some 30 employees, progressed on a seven-day-a-week basis, often around the clock. Enterprise Marine met contractual obligations for both delivery and quoted cost.

The first major project for Enterprise Marine, which was formed by Mr. **McBratney** and Mr. **Cangelosi** to serve the marine industry in the area of pierside and riding crew maintenance and repair needs, was the loading of more than 10 tons of fireworks onto 40 barges for the Statue of Liberty weekend festivities in New York Harbor.

For full information on the pierside and riding crew M&R, structural steel installation and job shop fabrication services offered by Port Newark-based Enterprise Marine,

Circle 19 on Reader Service Card

### Free 24-Page Technical Article On Asbestos-Free Packing Materials Offered

The Flow Control Division of Rockwell International has published a new 24-page technical article, "Tests of Asbestos-Free Stem Packings for Valves for Elevated Temperature Service."

The article describes a test program conducted to evaluate asbestos-free valve stem packing materials proposed for high-temperature service. Packing gland bolt loads, stem frictional loads, and packing compression were measured with room temperature water at pressures to 6,250 psig (431 bar) and with steam at pressures to 2,200 psig (152 bar). Valve stem diameters from 1 to 4 inches and strokes from 1.68 to 20 inches were also included in the testing.

Approximately 100 packing sets were cycle tested over a 12-month period. In addition, effectiveness of several corrosion inhibitors was evaluated in corrosion tests with 24 packing sets. Several successful



Photos, top to bottom: The M/V Saint Jean showing damage sustained to her stern transom plating; The Saint Jean after her damaged plating has been removed; Enterprise Marine employees shown performing work on the vessel's new steel; The Saint Jean's new stern transom plating is lowered into place.

packing material combinations are identified.

The Flow Control Division is a leading supplier of high-technology industrial valve and actuator products for the worldwide marine, electrical, power, oil and gas, chemical process and general industrial markets.

To obtain a free copy of the technical article from Flow Control,

Circle 82 on Reader Service Card

### \$13.5-Million Contract Awarded To GTE By Navy

GTE Government Systems Corporation, Mountain View, Calif., is being awarded a \$13,522,000 modification to a previously awarded firm-fixed-price contract for 18 AN/WLR-8(V) electronic support measure receivers with associated equipment for shipboard use. Work will be performed in Mountain View, and is expected to be completed September 30, 1988. The Space and Naval Warfare Systems Command, Washington, D.C., is the contracting activity (N00039-85-C-0209).

Maritime Reporter/Engineering News

## \$61.7-Million Contract Awarded To IBM By Navy For Signal Processors

International Business Machines Corporation, Federal Systems Division, Manassas, Va., is being awarded a \$61,704,000 fixed-price contract for long lead materials for AN/UYS-1 advanced signal processors. Work will be performed in Manassas (40 percent), and Owego, N.Y. (60 percent), and is expected to be completed in July 1989. This contract combines purchases for the U.S. Navy (99 percent) and for Spain (1 percent), under the Foreign Military Sales program. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-86-C-5212).

## Sperry Gets \$17.5-Million Navy Contract To Design And Build LCAC Trainer

The U.S. Naval Training Systems Center has awarded Sperry Corporation a \$17.5-million contract to design, develop, and assemble a full-mission simulator for the Landing Craft, Air Cushion (LCAC). Under the terms of the contract, the trainer is scheduled to be ready for operation by August 1989.

This LCAC trainer is said to be the first in the free world to simulate the performance and environment of a hovercraft. It will recreate not only the unique motion dynamics of the hovercraft in various sea conditions, but also the high-speed transition from sea to land and land to sea through varying surf conditions.

The LCAC, manufactured by the Bell Aerospace division of Textron, is a high-speed, ship-to-shore and over-the-beach hovercraft landing vehicle, capable of carrying a 60-ton payload. It is designed to carry the combat and logistics vehicles of a Marine Corps landing force to shore at speeds in excess of 40 knots. Current landing craft have a top speed of eight knots.

**Don O. Hartman**, Sperry's program manager for the LCAC trainer, said the simulator will have a computer-generated imagery system capable of producing full-daylight scenes. Like many aircraft simulators, the LCAC trainer will also have a six-degree-of-freedom motion base. To permit flexibility in training and ease of skill transfer, the simulation system will be equipped with two separate instructor stations, one located on the motion platform, the other located off the platform nearby.

The LCAC trainer will simulate the craft's entire control cabin, including the three trainee stations for the craftmaster, engineer, and navigator, as well as the group commander station. The trainer's instructor will be able to teach all maneuvers likely to be encountered during a complete mission. This includes docking and docking at the mother ship, maneuvering in waters ranging from dead calm to Sea State

5, approaching land, and maneuvering through the surf zone to the beach zone and return. In addition, the trainer will enable students to recognize navigation aids with and without radar. It will also be capable of simulating malfunctions and allowing instruction in the proper reaction to emergencies.

For free literature on the full range of marine electronics from Sperry,

Circle 42 on Reader Service Card

## Port Of Houston Names Leach New President; Pugh Executive Director

The commissioners of the Port of Houston Authority recently voted unanimously to name **Richard P. Leach** as president and **James D. Pugh** as executive director, according to announcement by **Archie Bennett Jr.**, chairman.

As president, **Mr. Leach** will serve as a Port of Houston employee over the next two years and represent the Port with shippers, national trade groups and international associations.

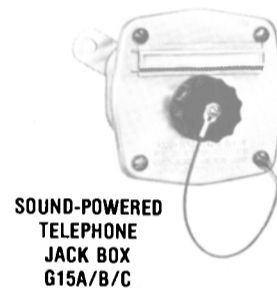
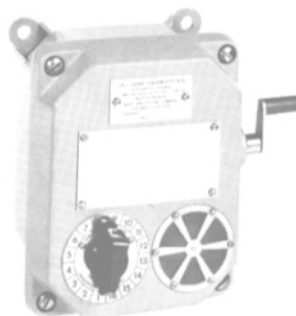
**Mr. Pugh** is being promoted to **Mr. Leach's** former position as executive director and will assume full responsibility for managing port facilities.

Both changes will become effective December 1.

Hose-McCann Telephone Co., Inc., originators and pioneers of Sound Powered telephones for marine use, has expanded their product line to include a wide variety of U.S. Navy Electrical and Mechanical products. An assortment of these products are shown here. All Hose-McCann Navy Products are manufactured, tested, and qualified in accordance with the latest Military specifications.

*Please call or write for further information and specifications on these or any other Navy Products.*

CALL SIGNAL STATION IC/D  
Symbol No. 2988



SOUND-POWERED TELEPHONE JACK BOX G15A/B/C



SOUND-POWERED TELEPHONE HANDSET H203/U



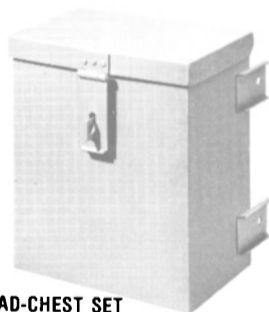
SOUND-POWERED HEAD-CHEST H200/U H202/U



HANDSET HOLDER Z33A/B



SOUND-POWERED TELEPHONE PLUG H39A



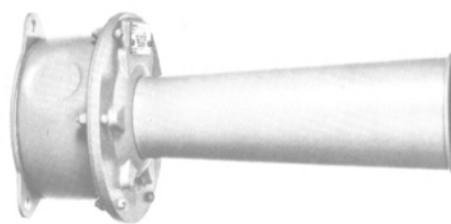
HEAD-CHEST SET STORAGE BOX Symbol No. 2924.1 (1 to 6 Compartments)



SOUND-POWERED TELEPHONE JACK H27A



ALARM BELLS & BUZZERS IC/B2S4 (Other types available)



HORNS & SIRENS IC/H1S4 (Other types available)



## HOSE-McCANN TELEPHONE CO., INC.

9 SMITH STREET ENGLEWOOD NEW JERSEY 07631  
PHONE 201-567-2030 CABLE ADDRESS: HOSETELCO TELEX NO. 642837

ORIGINATORS AND PIONEERS OF SOUND POWERED TELEPHONES FOR MARINE USE  
Circle 142 on Reader Service Card

## Spinner II Oil Cleaning Centrifuges Reduce Engine Wear Rates— Literature Offered

The Spinner II line of in-line flow powered oil cleaning centrifuges, a product of T.F. Hudgins & Associates Inc. of Houston, Texas, is now available from Warehouse Supplier of Lawrenceville, N.J. In addition, a free complete literature package

with detailed brochures and pamphlets is being offered on the oil cleaning centrifuges, which fully describes their advantages, applications and features.

The Spinner II line supplements full-flow filtration systems on diesel, dual-fuel or spark-ignited gas engines. Self powered by the engine's oil pressure, the centrifuge uses centrifugal force to remove dirt, sludge, soot and other detrimental contaminants from the engine oil.

Three models of the Spinner II cover a range of 120 to 960 gallons per hour and servicing is as easy as removing the "dirt cake" from the inner walls of the centrifuge bowl.

The free literature package detailing the Spinner II line of oil cleaning centrifuges, includes several color as well as black-and-white photographs, drawings, charts, and graphs fully describing the product. For a free copy,

Circle 3 on Reader Service Card

## Johnson Named President, Ship Engineering & Design For Advanced Marine

Dr. Robert Johnson has been appointed president of ship engineering and design for Advanced Marine Enterprises, Inc. (AME) of Crystal City, Va. The announcement was made by Simon Glatz, CEO of AME, who said that Dr. Johnson is assuming the leadership of a division currently executing approximately \$8-million worth of design, engineering, and technical support contracts for clients that include the Naval Sea Systems Command, the Military Sealift Command, and several firms in the private sector.

Before joining Advanced Marine, he was manager of ship design at Westinghouse Electric, where his responsibilities included design of the NATO frigate. Former positions include, at NAVSEA, technical director of ship design and integration, and deputy director of ship concepts development. At the Naval Ship Engineering Center, he was head of advanced design and computer applications for advanced design.

A graduate of Webb Institute of Naval Architecture, Dr. Johnson also holds a master's degree in solid mechanics from The George Washington University, and a doctorate in naval architecture from the University of California at Berkeley.

## Bailey Controls Unveils Multi-Function Controller—Literature Available

One of the latest enhancements to the NETWORK 90® process control system, the newly developed Multi-Function Controller 03 (MFC03) by Bailey Controls is a sequential and batch process controller designed to handle multiple control loops and support redundancy.

The MFC03 can be used in a wide range of applications for sequential, batch, PID, and programmable logic control. Future applications include communication with foreign devices requiring custom software. The unit functions through I/O slaves, communicating with them via a high-speed parallel bus, and has the unique ability to do batch and/or sequential control simultaneously.

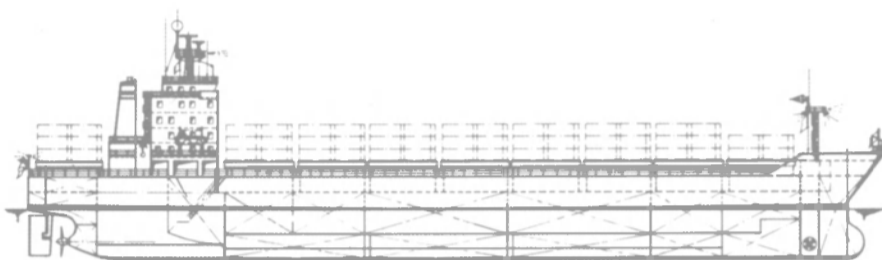
It is said to be a "one of a kind" device, based on the advanced Motorola 32-bit 68020 microprocessor featuring large 80K byte, battery-backed memory space that brings the power of a mini-computer to this process controller.

A library of advanced control algorithms called function codes are programmed into the MFC03's ROM. Control schemes consist of associating selected function codes with user-defined block numbers. The unit executes all of the blocks on a selectable cycle basis, thus performing the configured control.

For further information and free literature on the new multi-function controller,

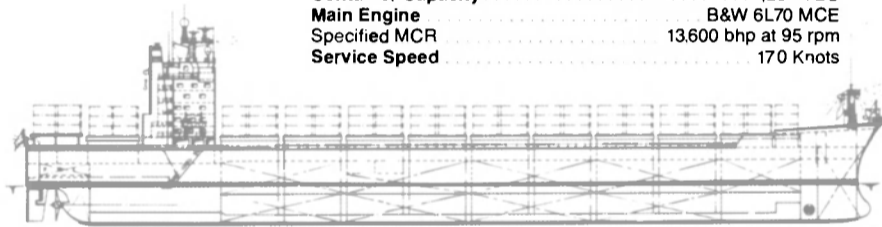
Circle 44 on Reader Service Card

# A New Concept of Designs for Container Vessels from Samsung



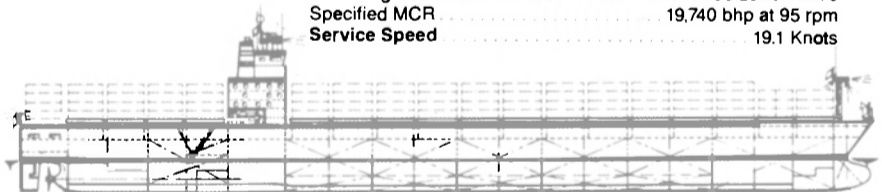
### 1,200 TEU Container Vessel

<b>Main Dimension</b>	
Lbp x B x D x d(d) x d(s)	160.00 x 27.40 x 16.00 x 9.50 x 10.70
<b>Deadweight at 10.70m draught</b>	25,600 MT
<b>Container Capacity</b>	1,234 TEU
<b>Main Engine</b>	B&W 6L70 MCE
<b>Specified MCR</b>	13,600 bhp at 95 rpm
<b>Service Speed</b>	17.0 Knots



### 2,000 TEU Container Vessel

<b>Main Dimension</b>	
Lbp x B x D x d(d) x d(s)	198.30 x 32.20 x 18.80 x 9.50 x 11.50
<b>Deadweight at 11.50m draught</b>	34,380 MT
<b>Container Capacity</b>	2,013 TEU
<b>Main Engine</b>	Sulzer 6RTA 76
<b>Specified MCR</b>	19,740 bhp at 95 rpm
<b>Service Speed</b>	19.1 Knots



### 3,600 TEU Container Vessel

<b>Main Dimension</b>	
Lbp x B x D x d(d) x d(s)	278.00 x 32.22 x 21.70 x 10.60 x 11.25
<b>Deadweight at 11.25m draught</b>	52,800 MT
<b>Container Capacity</b>	3,610 TEU
<b>Main Engine</b>	B&W 10K 80MC
<b>Specified MCR</b>	41,200 bhp at 93 rpm
<b>Service Speed</b>	22.0 Knots

Samsung has developed new concepts of the most economical containerships for shipowners.

Our new designs include all types of container vessels from 1,200 teu to 3,600 teu.

Samsung's Koje Shipyard is specialized in building containerships at the most competitive prices.

During the past six years, we have delivered four 34,000 dwt container vessels, one 41,300 dwt reefer and dry container/bulk carrier, and two 41,380 dwt multi-purpose contain-

er/bulk carriers, with an additional two 41,380 dwt multi-purpose container/bulk carriers under construction.

A special Samsung designed and adopted asymmetrical aftbody for the four 34,000 dwt full containerships which enables them to save 8% of propulsion power compared with the conventional symmetrical aftbody.

If you have future plans to build new containerships, come to Samsung, the yard that knows what container ships should be.

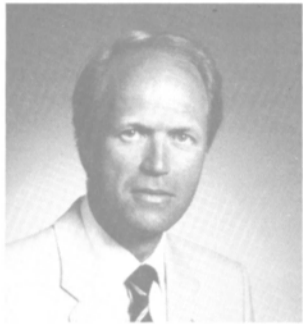
## SHIPBUILDING & OFFSHORE DIVISION SHI SAMSUNG SHIPBUILDING & HEAVY INDUSTRIES CO., LTD.

**KOJE SHIPYARD:** 530, Jangpyung-ri, Sinhyun-up, Koje-Kun, Kyongsang Nam-do, Korea. Tel: (Gohyun) 2-2151/9. (Seoul) 745-0992/3. Tlx: SSCYARD K52211/3  
**SEOUL OFFICE:** Samsung Main Bldg, 250, 2Ka, Taepyung-ro, Chung-Ku, Seoul, Korea. Tel: (Seoul) 735-6866/4505, 752-7088 Tlx: SHICO K23726, SSSYARD K23306  
**OVERSEAS BRANCHES** • LONDON Tlx: 264606 STARS L G. • DUSSELDORF Tlx: 8586392 SAM D • NEW YORK Tlx: 219176 SAM UR  
 • LOS ANGELES Tlx: 472057 LASTAR LSA • SYDNEY Tlx: 71747 SAMSYD AA • TOKYO Tlx: 2228463 SHITKY J • HONG KONG Tlx: 83236 HSTAR HX  
 • AL KHOBAR Tlx: 670708 SHKBR SJ

Circle 221 on Reader Service Card



**Andersson Appointed VP,  
Marketing & Sales For  
Wartsila Diesel, Inc.**



Rolf Andersson

Rolf Andersson has been appointed vice president, marketing and sales, for Wartsila Diesel, Inc. He was previously project and estimate manager for marine sales at the Wartsila Vasa factory in Finland. Mr. Andersson has more than 10 years' experience as chief engineer and engineer on ships operated by Swedish shipping companies.

In his new position, Mr. Andersson will be responsible for marketing and sales of Wartsila Diesel engines in the U.S. He will be headquartered in the firm's New York City offices.

Wartsila Diesel, Inc. with offices in New York, New Orleans and Houston, is a part of Wartsila Diesel, one of the leading manufacturers of medium-speed diesel engines. Wartsila Diesel production plants are located in Finland, Sweden, Norway, France and Singapore. The company also has a worldwide network of sales and service facilities.

**\$8.4-Million Contract  
To Gould For Trident  
Sub Control Trainer**

Gould Incorporated, Systems and Simulation Division, Tampa, Fla., is being awarded an \$8,370,260 firm-fixed-price contract for the Trident submarine ship control team trainer, device 21C10A, and backfit modification to the ship control operator trainer, device 21C10. Work will be performed in Tampa, and is expected to be completed in March 1989. Thirty-three bids were solicited and four offers were received. The Naval Training Systems Center, Orlando, Fla., is the contracting activity (N61339-86-0148).

**Hagglunds Offers Free  
92-Page Publication On  
Cranes, Deck Machinery,  
Cargo Equipment**

AB Hagglund and Soner, among the leaders in the fields of cargo-handling, heavy-duty hydraulic systems for industrial, marine and offshore applications, is offering a free, 92-page collection of 12 full-color

brochures on the company's marine and industrial services products.

The Hagglunds publication is an excellent reference tool, providing detailed and technical information on the ASEA AB subsidiary's background, quality assurance standards, production, manufacturing techniques, services, personnel, and, of course, wide range of products for marine and industrial usage.

Some of the brochures highlight-

ing the 92-page collection are: "Where Progress is a Tradition," a 20-page, full-color publication covering Hagglunds services, sales, quality and design; "Hydraulic Single Cranes" and "Hydraulic Twin Cranes," two 6-page brochures which provide technical specifications and detailed drawings of Hagglunds single and twin cranes; and two copies of Hagglunds International, one entitled, "Hagglunds

Hydraulics" and the other, "Hagglunds Marine."

More than 100 full-color photographs and drawings along with specification charts and tables are contained within the pages of the 12 book-bound brochures.

For a free copy of this fact-filled 92-page publication from Hagglunds,

Circle 87 on Reader Service Card

**Engineering Excellence**

The Cincinnati Gear Company has set the standards for high performance marine gears by specializing in surface hardened and precision ground epicyclic and parallel shaft diesel and gas turbine driven marine propulsion gears.



**Product  
Leadership**

High power density gearing is the new standard for U.S. Navy marine propulsion gearing, and Cincinnati Gear is leading the way. All of these programs used Cincinnati Gear surface hardened and precision ground marine propulsion gearing:

- The PHM/Jetfoil/H.M.S. Speedy (with CODOG drive) made by Boeing Marine Systems, all have gas turbine drives. For the LM-2500 or 501.
- The American Enterprise crewboat was built by Halter Marine, Inc., with a 501 gas turbine drive.
- The T-AO 187 fleet oiler made by Avondale Shipyards, Inc., has the largest carburized and hardened and precision ground gears in the U.S. Navy.
- The 3K-SES Navy program involved four 40,000 hp CGCO epicyclic gas turbine drives.
- Each LCAC produced by Bell Aerospace Textron has 8 gas turbine powered gearboxes and 24 couplings and clutches provided by CGCO.



PHM



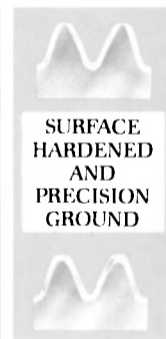
JETFOIL



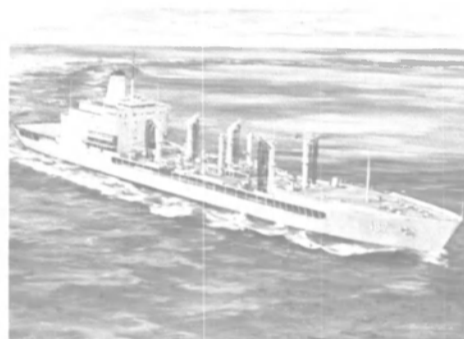
H.M.S. SPEEDY



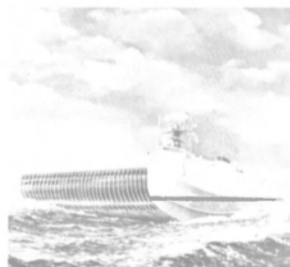
CREWBOAT



SURFACE  
HARDENED  
AND  
PRECISION  
GROUND



T-AO 187



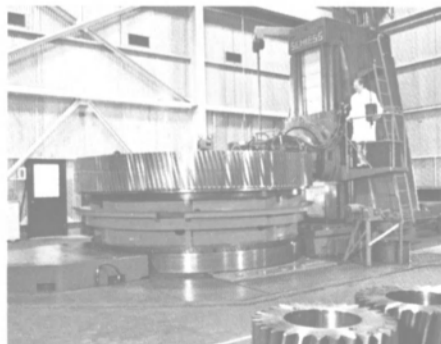
3K-SLS



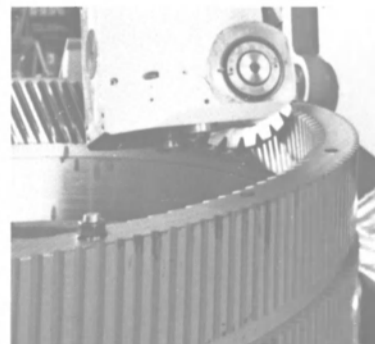
LCAC

**Facility and  
Equipment**

- Precision gear hobbing machine can cut class 14 gears up to 200" in diameter.
- Internal hobbing head attachment for internal gears up to 220" pitch diameter.
- Precision gear grinder for class 15 surface hardened gears up to 158" in diameter by 63" face.



EXTERNAL GEAR CUTTING



INTERNAL GEAR CUTTING



GEAR GRINDING

**The Cincinnati Gear Company** 5657 Wooster Pike, Cincinnati, Ohio 45227 513 271-7700 Telex No. 21-4568

Circle 150 on Reader Service Card

## D-C Drives Maintenance Training Courses Offered By Reliance Electric Co.

Reliance Electric Co. of Cleveland, Ohio, has announced that they are offering D-C Drives Maintenance and Troubleshooting Courses for those who want to learn solid-state D-C Drives and Systems.

According to the announcement,

the courses employ up-to-date teaching aids to give participants in-depth knowledge of the subject being covered. Experienced instructors plus the use of audiovisual aids and wiring diagrams provide students with a balanced mixture of lectures, discussions and class participation. Courses are designed to provide maximum learning and retention levels.

Tuition for this four-day course is

\$695 per student (team discounts available), and includes classroom instruction and training manuals.

D-C Drives Course No. 1-15 is being given in Philadelphia on December 2-5, 1986, and in New York N.Y., and York, Pa., in 1987 (ask for dates).

For information, call (1-216) 266-6000, or contact Reliance Electric Co., 24701 Euclid Avenue, Cleveland, Ohio 44117.

## CCT Assets Acquired By Crowley Maritime

Crowley Maritime Corporation's recent purchase of assets of Coordinated Caribbean Transport, Inc. (CCT) from International Controls Corporation will "greatly strengthen Crowley's capability to serve its customers and markets," a senior officer of Crowley said.

Commenting on the acquisition, **Robert G. Homan**, senior vice president and general manager of Crowley's Caribbean Division headquartered in Jacksonville, Fla., said that CCT will operate under the name Crowley Caribbean Transport as a business unit of his division, the mainstay and most widely known unit of which is Trailer Marine Transport. CCT management and staff will remain intact, according to Mr. Homan. **Hector Calderon**, who had been serving as president of CCT, will head the new acquisition as its general manager.

The CCT transaction, price and terms of which were not disclosed, will complement established Crowley RO/RO and container services between the U.S., Puerto Rico, the U.S. Virgin Island, eastern Caribbean islands, and Colombia. Crowley operates four terminals in the U.S. and one in Puerto Rico.

The acquisition will add six trailer- and container-carrying vessels to the Crowley Caribbean fleet. In its worldwide operations, Crowley's fleet numbers more than 400 ocean and harbor/river barges, container-ships, tugs, passenger vessels, and support craft.

## Sales Of MAN B&W Diesel's MC Engine Series Now More Than 10 Million BHP

The aggregate output of MAN B&W Diesel's MC Series of low-speed crosshead engines has now comfortably topped 10 million bhp. The breaching of that barrier, and the dominant position in world propulsion markets, is even more significant in light of the comparatively short time since the launching of the MC Series program in 1983. By September 1 this year, 885 MC engines with a total output of 10,467,630 bhp (nominal) were in service or on order.

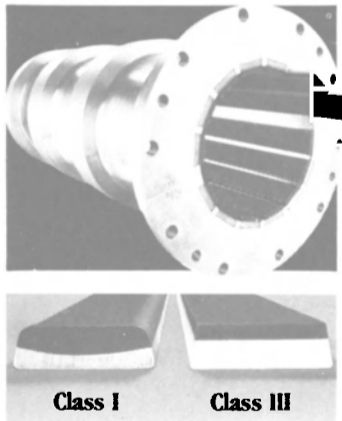
The uniflow-scavenged, two-stroke MC range now embraces eight bore sizes from 260 to 900 mm offering single-engine outputs from as low as 950 bhp to 64,320 bhp—the widest power range available for economical propulsion from any engine manufacturer. Three different stroke/bore ratios—2.875:1 (K models), 3.24:1 (L models), and 3.8:1 (S models)—and individual layout flexibility allows the operator to select an engine that most precisely matches the intended newbuilding or retrofit application.

For full information and free literature on MAN B&W Diesel's MC engine series,

Circle 30 on Reader Service Card

# IT DOESN'T TAKE A LOT OF BRASS TO IMPRESS THE NAVY.

BFGoodrich rubber and UHMWP Romor<sup>®</sup> bearing staves: first to be U.S. Navy qualified.



When it comes to bearing staves, the Navy prefers the strong, silent type. That's why Romor brand bearing staves from BFGoodrich were first to be qualified by the U.S. Navy to Mil-B-17901B Class III specifications.

A thin, soft, and very smooth rubber-surfaced lining backed by tough, non-corroding ultra high molecular weight polyethylene (UHMWP) reduces friction and allows Romor

staves to outperform Class I hard-rubber, brass-backed staves.

Romor staves are quieter, lighter, less expensive, more readily available and more energy-efficient than metal-backed staves. Which explains why they are used on more than 100 U.S. Naval and Coast Guard vessels, as well as by the navies of many other nations.

So, for new or retrofit marine applications, follow a naval tradition. Sign on Romor brand bearing staves. For a free brochure, write Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309. Or call 216-733-9955.

<sup>®</sup> Romor, a registered trademark of BFGoodrich



Circle 315 on Reader Service Card

- STRONG
- LIGHTWEIGHT
- MEETS O.S.H.A. STANDARDS
- DOZENS OF USES  
Scaffold Planks  
Beams  
Headers

Master Plank, an engineered wood product, is a continuous laminated veneer panel that can be cut into any required size for use as scaffold planks, beams and headers, etc. Available in standard widths. Master Plank, a wood laminate, provides strength properties superior to solid sawn wood. Warping, knotting and twisting are reduced, making the panel more consistently uniform.

For more information contact:  
**MC CAUSEY LUMBER CO.**  
 P.O. Box 38027-A • 7751 Lyndon Avenue  
 Detroit, MI 48238  
 Telex 23-0300 • Telephone (313) 861-2523

Circle 253 on Reader Service Card

## Economical ORCA Sewage Treatment Systems offer:

**Space saving physical/chemical design** requires 90% less space than biological systems.

**Low installation costs**

**Simple, automatic operation**

**Low operating and maintenance costs**

**Reliable micro-processor control**

**Quick delivery . . .**  
6 standard models

Model	II-12	II-24	II-36	II-165	II-330	II-500
Number people served	12	24	36	165	330	500

\*If low volume flush toilets are used, the number of people can be doubled.

**USCG certified and IMO approved**  
 Call or telex Dick Lambert for technical information, brochures or a quotation on a specific model.

**ENVIROVAC INC.** 1260 Turret Drive  
 Rockford, IL 61111 U.S.A.  
 Telephone 815/654-8300, Telex 257-415 (ENVIROVAC RKD)  
 Toll Free (USA only) 800-435-6951 (except in IL, HI, AK)

Circle 327 on Reader Service Card

## Soviet Union To Order Cargo Ships From Greece —Value \$65 Million—

A Merchant Marine Ministry spokesman reported that the Soviet Union will place an additional \$65-million order with Greek shipyards for four refrigerated cargo ships.

It was reported that the deal, which was said to have been clinched during a recent visit to

Moscow by Merchant Marine Minister **Stathis Sevdalis Alexandris** and the director general of Greek shipyards, **Vassilis Sevdalis**, would be signed once the first order for four ships was delivered. The first order was placed in 1985.

## Bird-Johnson Acquires HDF And Olympic Propeller Companies And Realigns Management



Robert DenHerder



Donald Ridley



Andrew Barrs



Gary Dayton



Carleton Bryant III



Andrew Noel

Bird-Johnson Company of Walpole, Mass., a leading manufacturer of commercial and naval controllable-pitch propeller systems, has purchased the assets of The 76 Corporation, comprised of the HDF and Olympic Propeller Companies of Seattle. The firm will reopen on the site of the former HDF Propeller Company as the RDH Propeller Division of Bird-Johnson's Seattle Operations.

As a West Coast repair and reconditioning facility and major distributor of fixed-pitch propellers, the new division will significantly broaden the capabilities of Bird-Johnson. Technicians qualified to meet American Bureau, U.S. Navy, Coast Guard, and Lloyd's welding, repair, and quality criteria will be employed at the Seattle facility. **Robert DenHerder**, a former owner of HDF Propeller, has been named general manager.

Bird-Johnson has realigned its management to insure the efficient handling of the increased marketing, sales, and production activities.

**Charles A. Orem**, president and CEO, has announced the following appointments: **Donald E. Ridley**, in addition to his present responsibilities as senior vice president, has been named special assistant to the president charged with the orderly integration of regional operations. **Andrew F. Barrs**, formerly manager-major programs, has been promoted to director-quality and program management. **Gary W. Dayton**, previously sales manager, has been appointed director-marine marketing and services. **Carleton F. Bryant III**, past director-operations, will hold a newly formed position of director-business development, engineering and materials. **Andrew B. Noel** has been hired as director-operations; he comes to Bird-Johnson with 18 years of manufacturing management experience.

For free literature containing further information on Bird-Johnson's CP propeller systems and other equipment,

Circle 56 on Reader Service Card

## Navy Will Order All New Coastal Minesweepers In U.S. Shipyards

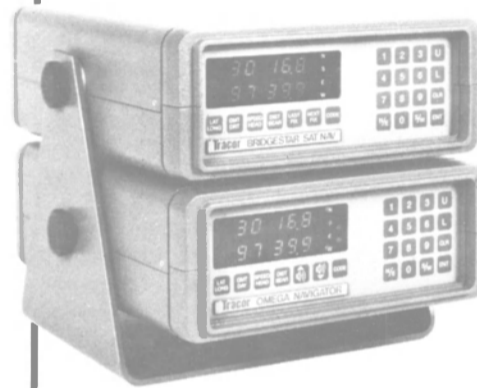
In an apparent response to pressure from Congress, the Navy has abandoned its plan to build the lead ship (and possibly the second) of a new class of coastal minesweepers in an Italian shipyard.

According to Rear Adm. **Stuart Platt**, competition advocate gener-

al, the Navy has now decided that there is sufficient capability in the U.S. to build *all* of the new coastal minesweepers here. However, the vessels will still be designed by the Italian firm Intermarine SpA. The design will be a modification of the firm's Leric Class coastal minesweepers to meet U.S. requirements. The U.S. craft will be longer, wider, and heavier than the Italian version, and have twin-screw propulsion.

## Worldwide Navigation for under \$7,500

You can't always depend on the stars to see you safely across the oceans. That's why more and more captains rely on Tracor Global Navigation Systems. Our integrated Bridgestar/Omega Navigator keeps you on course with precise position fixes from Transit satellites — continuously updated by Omega station signals. In addition, there's a complete route planning function, distance and bearing to 15 waypoints and the unique "Sleep Mode" feature that cuts power consumption to the absolute minimum.



Tracor navigation systems have a proven record of performance and reliability and they are backed by an experienced sales/service dealer network with over 200 locations worldwide. Call us today for a free GNS brochure and the name of your nearest representative.

### Tracor Instruments

Tracor Instruments Austin, Inc. 6500 Tracor Lane Austin, Texas 78725 Telephone 512: 929 2051

Circle 293 on Reader Service Card

## MARCO OIL SPILL and DEBRIS SKIMMERS



UNIQUE  
FILTERBELT  
SYSTEM

More than 75  
MARCO skimmers  
operating worldwide

REQUEST OUR FREE BROCHURE

### MARCO POLLUTION CONTROL

2300 West Commodore Way • Seattle, WA 98199 USA  
Phone (206) 285-3200 • Telex 160587 MARCO UT

Circle 350 on Reader Service Card

# PROPULSION UPDATE

## Arneson Surface Drives Offer Performance With Reliability

—Literature Available—

Arneson Marine, Inc., Corte Madera, Calif., are the manufacturers of a state-of-the-art marine propulsion system, Arneson Surface Drives (ASD) which utilizes surface piercing propellers to provide propulsion for all craft from 16 to 150 feet.

Increasingly popular with builders intent on achieving outstanding performance with reliability, Arneson Surface Drives (ASD) have found particular favor with government, defense and commercial operators around the world. Arneson Marine offers eight basic sizes of the propulsion systems (ASD-6, -8, -10, -12, -14, -16 and -18) differentiated by input torque capacity (See Specification Chart). Production ASD units are available for use with gas, diesel and gas turbines up to approximately 5,000 hp.

According to a recently published brochure from the company, Arneson Surface Drives offer several propulsion advantages for all types of vessels. Some of the advantages

listed include: higher top speed and increased efficiency; excellent maneuverability and steering control; flexibility of engine placement; minimum noise and vibration; easy "in-

the-water" propeller changes; and ease of installation and alignment.

Arneson Marine has expanded their performance line to include drop-center versions of the models ASD-8 and ASD-10. These units are available in 10-inch and 16-inch offsets, and with several integral reduction ratios, in lightweight cast aluminum or sturdy manganese bronze. ASD's surface-piercing propulsion technology provides efficient use of engine horsepower and eliminates the drag of underwater gear.

The California-based manufacturer has distributors worldwide in such countries as Australia, Brazil, Indonesia, Italy, Sweden, Switzer-

land, Taiwan, Thailand, Turkey and the U.K. Additionally, **Craig W. Dorsey**, president of Arneson Marine, Inc., recently announced the signing of an agreement with Second Effort Performance Products, Inc., which will transfer their surface drive manufacturing capability to AMI for an undisclosed amount. The agreement includes all inventory, patterns and tooling for Second Effort Models 1050 and 1600 surface drives.

Arneson Marine is offering a free brochure fully detailing the performance and reliability of their ASD marine propulsion systems. For a free copy,

Circle 14 on Reader Service Card

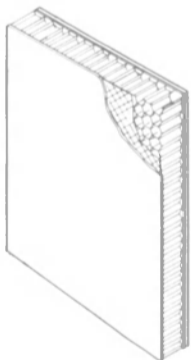
CURRENT MODELS		ASD 6	ASD 8	ASD 10	ASD 12	ASD 14	ASD 16	ASD 18						
IN-LINE		Yes	Yes	Yes	Yes	Yes	Yes	Yes						
DROP-CENTER		Yes	Yes	Yes	—	—	—	—						
HORSEPOWER ACCEPTANCE	GASOLINE	To 450/550	To 1200	Contact AMI										
	DIESEL	To 235/300	To 3500 (Subject to Application)											
	GAS TURBINE	To 5000 (Subject to Application)												
REDUCTION RATIOS AND TORQUE LIMITS	REDUCTION RATIOS			TORQUE LIMITS (Foot-Pounds)										
	ASD 6	ASD 6	ASD 8	DROP-CENTER		IN-LINE		DROP-CENTER		IN-LINE		IN-LINE		
	GEAR*	CHAIN	CHAIN	GEAR*	CHAIN	IN-LINE	DROP-CENTER	IN-LINE	DROP-CENTER	IN-LINE	IN-LINE	IN-LINE	IN-LINE	
	0.98:1	1.00:1	1.00:1	630	650	650	1000	1000	1500	1500	2500	5500	9000	16000
	1.33:1	1.31:1	1.31:1	480	500	—	770	Reduction Ratios in Marine Transmission						
1.56:1	1.58:1	1.50:1	430	450	—	670								
—	—	2.00:1	—	—	—	500								
*ASD 6 gear drive unit can be used only with counter-clockwise input rotation (looking forward)		—	—	2.23:1	—	—	—	450						

### JOINER BULKHEADS

THE NAVY'S LIGHTEST AND STRONGEST HONEYCOMB BULKHEAD PANELS —

(Meets U.S. Navy Specs)

- \*Corrosion Resistant
- \*Lightweight
- \*High Strength/Weight Ratio
- \*Decorative



- \*Aluminum
- \*Steel
- \*Stainless Steel
- \*GRP/Nomex®

#### TYPICAL APPLICATIONS:

- \*M.J. Bulkheads
- \*Berthing Partitions
- \*Shower Enclosures
- \*Waterclosets
- \*Work Stations
- \*False Decks

AVAILABLE WITH ALUM., CRES & GRP ERECTION MEMBERS



ADVANCED STRUCTURES CORP.  
235 WEST INDUSTRY COURT  
DEER PARK, NEW YORK 11729  
516-667-5000

NOMEX® ARAMID IS A TRADEMARK OF DUPONT

Circle 246 on Reader Service Card

### CENTRIFUGE • SEPARATOR • PURIFIER PARTS



#### EQUIPMENT • PARTS • SERVICE • REPAIR

OEM QUALITY +

LARGE SAVINGS OVER OEM

STOCKING FOR ALFA-LAVAL/DELAVAL PURIFIERS

MODELS—MAB—MAPX—MOPX—WHPX—FOPX

AVAILABLE—MINOR—INTERMEDIATE—MAJOR

E—CENTRI-KITS

MAIN OFFICE  
757 Murry Street  
Indianapolis, IN 46227  
(317) 783-5496  
Dale Brackin

WEST COAST OFFICE  
666 Baker Street #265  
Costa Mesa, CA 92626  
(714) 540-3200  
Tom Junod

TOLL FREE CALL 1-800-952-6859  
TELEX: 27-6125

Circle 128 on Reader Service Card

**FERNSTRUM**  
**GRIDCOOLER**

When lives depend on your boat's reliability...

Don't take a chance on your cooling system. Crockett & McConnell use Fernstrum GRIDCOOLERS to keep their search and rescue crafts always ready.

Fernstrum GRIDCOOLERS are completely assembled and factory tested to assure dependable service. Fernstrum GRIDCOOLERS are available in copper-nickel 90/10 and 5000 series aluminum.

TO CONTACT US:  
R. W. FERNSTRUM & COMPANY  
MENOMINEE, MICHIGAN, U.S.A. 49858  
Phone: (906) 863-5553 • Telex: 26-3493  
Answer Back: FERNSTRUM MNOM

Circle 115 on Reader Service Card

Maritime Reporter/Engineering News

## Malta Drydock Awarded \$10-Million Contract To Upgrade P&O Cruise Ship

P&O Cruises has announced the signing of a \$10-million contract with Malta Drydocks to upgrade the liner Sea Princess prior to her joining the Los Angeles-based Princess fleet. In addition to major refurbishing of passenger areas, the ship will be fitted with five new Wartsila Vasa diesel generators, with Stromberg alternators, and the main switchboard will be upgraded by British Brown Boveri Limited. A new Atlas evaporator will utilize waste heat from the gensets' cooling systems.

Following the refit, the Sea Princess has a program of cruises in the Caribbean this winter. In the summer she will operate 10-day cruises from San Francisco to Alaska as part of P&O's Alaskan Holidays program.

## Newport News Awarded \$3-Million Contract For Lead Time Material

Newport News Shipbuilding and Dry Dock Company, a Division of Tenneco, Newport News, Va. is being issued a \$3,039,518 task order under a cost-plus-fixed-fee Basic Ordering Agreement for procurement of long lead time material to support future fiscal year Submarine Extended Operating Cycle Modernization Program support (SEOC-MP). One bid was solicited and one offer was received. The Supervisor of Shipbuilding Conversion and Repair, Newport News, Va., is the contracting activity (N00024-85-G-2022).

## Jones F. Devlin Jr.

Jones F. Devlin Jr., a former United States Lines executive, died recently at the age of 87. A native of Salem, Mass., he joined USL after World War I as an officer aboard the passenger ship America. He left the company a few years later to work for Dollar Line.

He was employed by American Export Line from 1936 to 1942, when he organized the War Shipping Administration's Office of Marine Superintendent. He rejoined U.S. Lines in 1947 and was named general manager in 1948. He retired in 1964 as vice president of operations.

## Ak-Wa Inc. Receives \$4.7-Million Contract To Build 14 Army Barges

Ak-Wa, Incorporated, Tacoma, Wash., is being awarded a \$4,698,127 firm-fixed-price contract for 14 liquid cargo barges. Work will be performed in Tacoma, and is expected to be completed by October, 1988. There were 188 bids solicited and 20 bids received. The contracting activity is the U.S. Army Troop Support Command, St. Louis, Mo. (DAAK01-86-C-282).

## Compact Control Valve Does Job Of Much Larger Units—Literature Available

Piping Specialties, Inc. of Farmingdale, N.Y., is offering free color literature on the new Northvale Series 70 "Mini Valve" which, according to the manufacturer, is designed

to save space in many industrial and commercial applications. This economical valve is available in bronze body with stainless steel trim in both two-way and three-way configurations. All stainless steel construction can also be obtained.

A diaphragm operator provides excellent control of steam up to 150 psi or 232 psi liquids. Teflon and metal seals are available for on/off,

proportional control or flow mixing.

These valves feature bubble tight shut-off and are available with or without positioners.

For more information and free copies of the literature from Piping Specialties,

Circle 89 on Reader Service Card

# WYNN

makes one thing perfectly

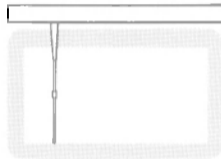
# CLEAR

...your windows!!!

Introducing the WYNN Straight-Line Marine Window Wiper that keeps on working!

WYNN...Strong, Rugged marine window wipers, designed to work and keep on working, in all kinds of weather and conditions.

WYNN stays warm, stays dry, is corrosion resistant and keeps working with virtually no maintenance. WYNN, don't leave port without it!



MARKETEC, INC.

Agent for WYNN and other fine marine manufacturer's products.

Detailed catalogs and technical information available.

27 Bowers Lane, Chatham, NJ 07928 U.S.A. (201)635-0040 Telex: 853122

See us at SNAME Booth 209

Circle 330 on Reader Service Card

## 25 HIGH-PERFORMANCE APPLICATIONS FOR THE MARINE INDUSTRY



## SHIPBOARD APPLICATIONS FOR...

- **heavy-duty marine coatings**  
for hulls, superstructures, propeller shafts; corrosion and nonskid protection.
- **multi-purpose epoxy adhesives**  
used extensively on surface ships and subs.
- **resin chocks & resin-fitted bearings**  
maintain precise permanent alignment of main propulsion systems and auxiliary equipment; sterntube and rudder bearings.
- **specialty fairing & repair compounds**  
for quick repairs to pumps, condensers, tanks, pipes and valves.

**TW Philadelphia Resins Corporation**

P. O. Box 454 • Montgomeryville, PA 18936 USA  
Telephone (215) 855-8450 Telex 277595

Circle 229 on Reader Service Card

# TROY

## BRASS, BRONZE, STAINLESS STEEL AND MONEL\* FASTENERS

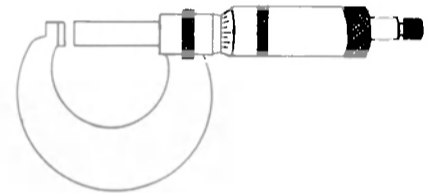
THE ORIGINAL NON-FERROUS SPECIALISTS SINCE 1912

Quality Control Program

IN ACCORDANCE WITH

MIL-I-45208

MIL-C-45662



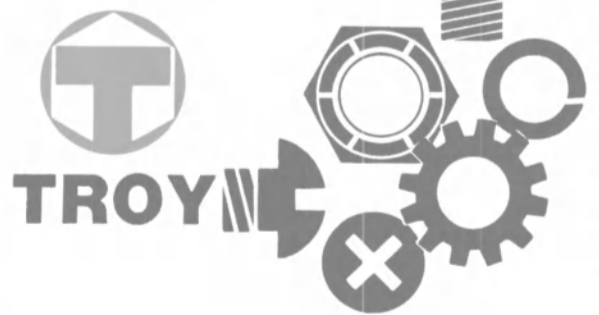
Specification Requirements I.A.W.

MIL-S-1222

MIL-B-857

MIL-F-19700

SAME DAY SERVICE ON INQUIRIES AND SHIPMENTS



**T.A. & D.A. TROY CO., INC.**

EASTERN STATES  
CORPORATE OFFICE  
315 Fairfield Road  
Fairfield, N.J. 07006  
N.J. 201-228-3553  
FAX: 800-772-3693  
TELEX: 219285TROYUR

WESTERN STATES  
5787 Washington Blvd.  
Commerce, Calif. 90040  
213-726-7060

\*Trademark of INCO

Circle 285 on Reader Service Card

## Datamarine International And Stephens To Merge

Datamarine International, Inc., Pocasset, Mass., a leading manufacturer of marine electronic navigation systems and industrial flowmeters, has announced the signing of agreements to acquire and merge with Stephens Engineering Associates, Inc. (SEA) of Mountlake Terrace, Wash.

SEA designs, manufactures and markets high quality radio-telephone systems and components for use in marine and land mobile communications.

According to **Howard H. Hill**, president of Datamarine, the companies have agreed that SEA will remain in the Seattle area and operate as an independent business under its present management.

The intended merger has been approved by the board of directors

of each company and is subject to ratification by SEA's stockholders. **Mr. Hill** concluded, "the companies plan to consummate the merger before the end of Datamarine's current fiscal year, September 27, 1986."

Datamarine International, Inc., designs, manufactures, sells and services marine instrumentation, including: depth sounders, knotmeters, wind indicators and loran C navigation computers for recrea-

tional boating and liquid flow instrumentation for industrial uses.

For additional information, including free detailed literature on the full line of products offered by Datamarine,

Circle 80 on Reader Service Card

## Stewart & Stevenson Delivering 60 DDA Engine Packages To Swiftships —Literature Available

Under a contract for 60 engines totaling about \$1.9 million, Stewart & Stevenson Services, Inc. of Houston recently began deliveries to Swiftships, Inc. of Morgan City, La. The engines will power 30 patrol boats that Swiftships is building for the Government of Cameroon.

These Detroit Diesel 6V92TA marine engines are rated 550 bhp at 2,300 rpm. They are built to the DDA "Forward Plan" specification, including advanced liquid charge air cooling, water-jacketed exhaust manifolds, and riser and water-cooled turbos. They are being fitted with Twin Disc MG510A reverse/reduction gears and VDO instruments. Deliveries are to be completed by the end of this year.

For additional information and free literature on Stewart & Stevenson,

Circle 72 on Reader Service Card

For further information on the shipyard facilities and capabilities of Swiftships,

Circle 73 on Reader Service Card

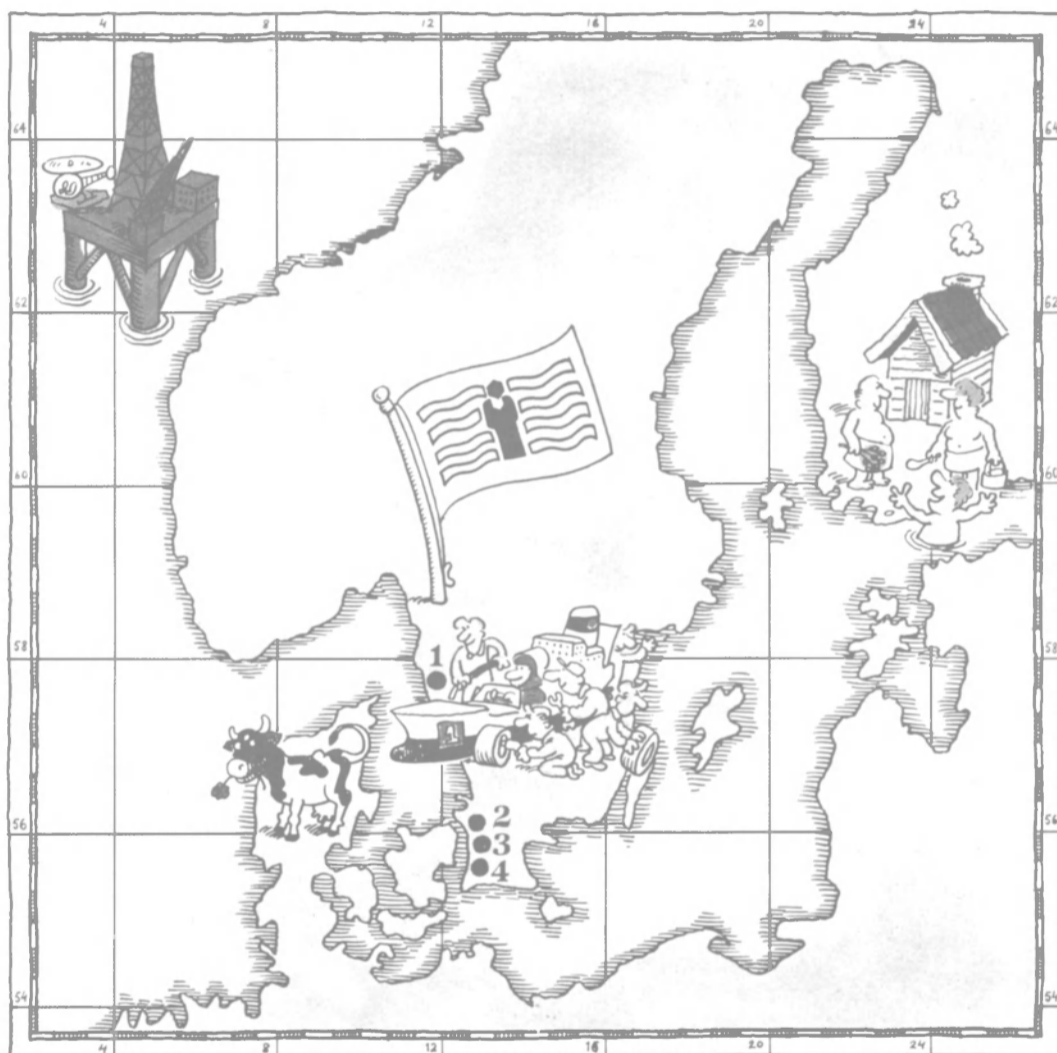
## A&T Wins Contracts Worth \$18.6 Million; Backlog At \$95 Million

Analysis & Technology, Inc. (A&T) of North Stonington, Conn., has won contract awards from the U.S. Navy totaling \$18.6 million, bringing their total backlog to a present record high of \$95 million, according to company president and chief executive officer **A.T. Mollegen Jr.**

A three-year contract for \$7.4 million will provide for engineering services to support the Trident submarine's Defensive Weapon System/Command Subsystem. A \$5.4-million contract will support the Navy's SEA NYMPH Submarine Communications System. The basic contract has a ceiling of \$1.5 million in the first year, plus two one-year options of \$1.8 million and \$2.1 million, respectively. A \$2.1-million six-month contract will provide for engineering services for the Acoustic Performance Prediction and the Integrated Carrier Acoustic Performance Systems. In addition, a variety of smaller U.S. Navy contracts have been received by A&T over the past two months; these total \$3.7 million and extend for periods of up to three years.

When in Nordic Waters come to

# REPAIR COUNTRY



Ships only make money for their owners when they are at sea. So time out for necessary visits to the shipyard has got to be kept to a minimum. This naturally places great demands on the yard and the yard's ability to plan ahead. At Cityvarvet we've got our own tactics.

Even before the ship arrives at the yard we get to work finding out exactly what has to be done. Most of the time this means a visit to the ship at sea or in some port of call. After that we can begin

work just as soon as the ship arrives. And we work according to a strict schedule.

Everyone knows exactly what to do. We use the latest techniques and the most advanced procedures. We are a team and we are proud of it — and our team approach has made us famous too!

We have docks in three different Swedish ports that can take ships of up to 250,000 dwt. A tender from Cityvarvet is good in anyone of our yards in Goteborg, Landskrona or Malmo.

The choice is yours. The cost is the same.

### YARD SERVICE

## CITYVARVET

1. Cityvarvet

1. Cityvarvet  
Lindholmen

P.O. Box 8753,  
S-402 76 Goteborg, Sweden.  
Phone Int +46-31 50 20 00.  
Telex 27440.

3. 4. Cityvarvet  
Oresund

P.O. Box 701,  
S-261 27 Landskrona, Sweden.  
Phone Int +46-418 240 70.  
Telex 72685 OVREPS.

P.O. Box 832,  
S-201 80 Malmo, Sweden.  
Phone Int +46-40 97 32 07.  
Telex 33190.

Goteborg: 6 docks vessels up to 250,500 tdw.

Landskrona Malmo: 4 docks vessels up to 30,000 tdw.

Circle 205 on Reader Service Card

### PORT AND SEAGOING SERVICE.

## CISERV

1. Ciserv

Indiska Oceanen,  
Skandiahamnen,  
S-417 34 Goteborg, Sweden.  
Phone Int +46 31 530320.  
Telex 21155.

2. Fartygsmekano

Västra Hamngatan,  
S-252 24 Helsingborg, Sweden.  
Phone Int +46 42 120295.  
Telex 12442.

## Advanced Structures Offers New Free Brochure On Honeycomb Panels For Shipboard Applications

Advanced Structures Corporation, Deer Park, N.Y., is offering a free eight-page color brochure on their honeycomb panels and systems for shipboard applications.

The new publication features more than one dozen illustrations showing the various uses and applications of Advanced Structures honeycomb panels. The panels, which are constructed to exacting NAVSEA drawings and military specifications, can be ordered in aluminum, stainless steel (cres), coated steel, plastic laminate finish and paclam finish faces.

According to the brochure, there are an infinite variety of panel sizes, thicknesses, materials, integral channels, close-out channels, etc., which offer solutions to many construction requirements. The panels can be used for bulkhead systems,

consoles/false decks, berths/lockers, water closet booths, privacy partitions, showers, mess area partitions, work stations, etc. ASC also offers honeycomb M.J. doors in four styles.

Advanced Structures is one of the world's most experienced suppliers of honeycomb panels for Navy applications including joiner bulkheads, doors, sanitary space partitions and more. Programs that have been furnished by ASC include: DD-963, LHA, FFG-7, AO, AS, LHD-41, CG-47, PGG-511, ARS-50, MCM, SES, PHM, NAVSEA Self-Help, CV-SLEP, and most habitability overhauls.

For a free copy of this eight-page brochure from Advanced Structures,

Circle 62 on Reader Service Card

## PROPULSION UPDATE

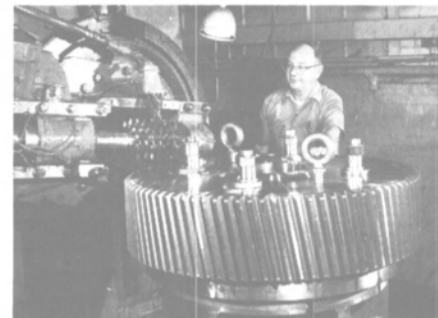
### Falk Introduces New RW Series Energy-Efficient Marine Drive

—Color Brochure Available—

For some 70 years, The Falk Corporation of Milwaukee has been building a reputation for producing durable, reliable, and energy-efficient marine drives. Every day, thousands of such drives provide dependable service in tugs, towboats, offshore service vessels, and naval ships.

The recently launched RW Series continues in that seagoing tradition, expanding Falk's marine drive capability and matching more needs. It combines state-of-the-art technology with modern manufacturing methods to provide more shaft power at lower cost.

This new reversing drive with



Falk worker with Renk-designed RW 2315 low-speed gear.

multi-disc hydraulic clutches features surface-hardened and finished

(continued)

# EFFICIENCY

DECK AND AUXILIARY MACHINERY DESIGNING, BUILDING, REPAIRING

### The Choice is Markey

Wilmington Transportation co.'s newest tug the 95' "PHILIP W." joins the fleet in handling many ships in these harbors. Once again Wilmington selects Markey deck machinery to give the tug the capability of working her chores more efficiently. Her Hydraulic stern Capstan and Gypsy Bitt Windlass are "MARKEY." How about yours?

# MARKEY

**MARKEY MACHINERY CO., INC.**  
P.O. Box 24788, Seattle, Wash. 98124  
79 S. Horton St., Seattle, Wash. 98134  
Ph. 206-622-4697

KNOWN ON  
THE 7 SEAS  
SINCE 1907

REPRESENTED BY

H. J. WICKERT & CO., INC., 1550 Burke St. - Unit D  
San Francisco, Ca. 94124 • Ph. 415-647-3500  
J. H. MENGE CO., INC., P.O. Box 23602  
New Orleans, La. 70183 • Ph. 504-733-4871  
J. H. MENGE CO., INC., 1011 World Trade Bldg  
1520 Texas Ave., Houston, Tx. 77002 • 713-224-9750

Circle 33 on Reader Service Card

MEET LATEST IMO/SOLAS REQUIREMENTS

### 3 SOLUTIONS FROM WAUKESHA BEARINGS

1.

#### PRES-VAC EJECTORS

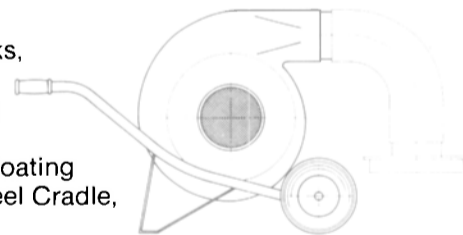


- High Pressure Ejectors for 5-15 bar
- Low Pressure Ejectors for 2-6 bar
- Materials: Bronze
- Flanges: Per ASA 150 lb.

2.

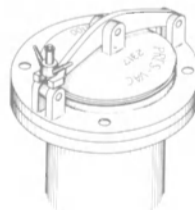
#### PRES-VAC GAS FREEING FAN, PGF

- Water Turbine Drive
- Gas Frees Non-inerted Tanks, per SOLAS Reg. 59.2.2
- Large Volume of Air at High Static Pressure
- Internal & External Epoxy Coating
- Light Weight Galvanized Steel Cradle, Solid Rubber Wheels



3.

#### PRES-VAC GAS FREEING COVER, GFC



- IMO Type Test Approved per MSC/CIRC. 373
- Official Test Certificate, IMO
- Specification Sheet Available

Ask us about IMO Approved High Velocity PV Valves.

Call for details:



**WAUKESHA BEARINGS**

A FALKER INDUSTRIES COMPANY

P.O. BOX 798 WAUKESHA, WI 53187 U.S.A.  
TELEPHONE 414-547-3381  
TELEX 4311042/FAX: (414) 547-5508

Circle 162 on Reader Service Card

## Falk Introduces New Marine Drive

(continued)

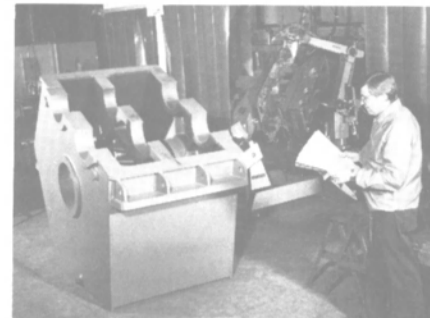
gearing, all-steel fabricated housings, a special hydraulic pressure control, valves for smooth clutch engagement, and more. It is available in sizes up to 7,000 bhp, with stan-

dard ratios in the range of 1.5:1 to 7:1.

The RW Series marine drive provides long-proven Falk advantages: high-efficiency gears, long bearing life, and simplified maintenance. Important, too, is the full support of Falk's experienced engineering staff to help match the right drive to the specific marine application. Customers can also be confident of ser-

vice when they need it, utilizing facilities and personnel on call 24 hours a day, seven days a week.

Falk offers an elaborate, 16-page color brochure describing in detail the company's facilities and products. Liberally illustrated with color photographs and line drawings, the brochure presents Falk's diverse capabilities, including wide choice of products, stringent quality control,



Falk RW 2315 housing with welding robot in the background.

highly skilled and motivated people, and unique ability to assume single-source responsibility.

Falk takes pride in its total process control capabilities, from its in-house steel foundry (dramatically illustrated in the brochure) to the special deepwell rail cars used for shipping large gears and drives. The company's machining, cutting, and grinding operations are served by an array of modern machine tools capable of producing precision components weighing from several ounces to more than 70 tons.

For further information on the new RW Series marine drive and a free copy of the company brochure,

Circle 20 on Reader Service Card

## Taylor & Anderson Towing Announces Name Change

Taylor & Anderson Towing & Lighterage Co. has announced that it changed its name to Taylor Marine Towing Inc., effective October 1, 1986.

The address for Taylor Marine Towing Inc. will remain the same: 1108 Mall Building, 325 Chestnut Street, Philadelphia, Pa. 19106, phone (215) 925-5865 or (215) 922-2666.

## Caterpillar Marine Service Directories Now Available

The complete listing of Caterpillar's marine service facilities located throughout the world are now available. The information is presented in a concise topographical format making it easy to locate any port facility offering Caterpillar parts and service and other technical support.

The directory information for each service includes such information as phone numbers, addresses, hours of operation, after hours emergency service, emergency parts data, and terms of payment, along with other information.

There are two different directories available. The North American Directory includes ports in Canada and the United States. The Worldwide Directory includes ports located in all other countries, excluding the United States and Canada.

For free copies of "Caterpillar Worldwide Marine Service Directory,"

Circle 52 on Reader Service Card

For free copies of "Caterpillar North American Marine Service Directory,"

Circle 13 on Reader Service Card

# NOW IN STOCK

- MIL-C-2212 Motor Starters • DOD-S-17773 Automatic Bus Transfer Switches
- Commercial Marine Motor Controls • Contactors, Relays & Replacement Parts

Now there is no need to put up with long factory deliveries on A.C. Motor Starters and Automatic Bus Transfer Switches for shipboard use. Our Navy/Marine control distributors now stock a large assortment of replacement A.C. motor starters and ABT's meeting MIL and IEEE45 specifications. They also carry a wide selection of control relays, contactors, contact kits, coil kits, and other parts used on many Naval ship classes, including DD-993, CG-47, ARS-50, MCM-1, LHD-1, LSD-43 and DDG-51

### CALIFORNIA

Emeryville  
National City  
San Francisco  
Wilmington

Beck Electric Supply  
Potter Electric, Inc.  
Potter Electric, Inc.  
California Marine Supply

415-652-5665  
619-474-8171  
415-421-2953  
213-435-8224

### FLORIDA

Jacksonville  
Tampa

Ace Elec. Supply Co.  
Penn Motor Works

904-731-5900  
813-248-3724

### LOUISIANA

New Orleans

LONG Elec. Supply Co.

504-524-8383

### MAINE

Portland

WESCO

207-772-6507

### MICHIGAN

Iron Mountain

Z & R Electric Service

906-774-0468

### NEW JERSEY

Cherry Hill

Joseph T Fewkes & Co

609-424-3932

### NEW YORK

New York City  
Westhampton  
Beach

Argo International Corp

212-431-1700

### OREGON

Portland

Apollo Marine Serv. Inc.

503-286-3693

### VIRGINIA

Norfolk

Bay Marine Supply Inc

804-627-1889

### WASHINGTON

Seattle

Todd Electric Sales Co

804-855-3111

Beck Electric Supply

206-763-2011

**Ward  
Leonard**



31 South Street  
Mt. Vernon, N.Y. 10550  
Phone: (914) 664-1000  
Telex: 13-7427



Circle 192 on Reader Service Card

Over 15 years professional experience assisting marine firms

## STRATEGIC PLANNING PRODUCT INTRODUCTION BUSINESS ACQUISITIONS

I.M.A.'s experience includes more than 100 projects  
for clients in 20 countries

## INTERNATIONAL MARITIME ASSOCIATES, INC.

3050 K STREET, N.W.  
SUITE 345  
WASHINGTON, D.C. 20007

TELEPHONE: (202) 333-8501  
TELEX: 64325 IMA  
TELEFAX: (202) 333-8504



Circle 30X on Reader Service Card



**Toma Named  
Marine Systems Sales  
Representative In Miami**

Sperry Corporation, Charlottesville, Va., has announced the appointment of **George Toma** as its marine systems sales representative for Miami, Fla.

Prior to joining Sperry's marketing staff, Mr. **Toma**, a U.S. Merchant Marine Academy graduate, served as a mate on the Sperry Star, a marine research vessel.

**Roger Brauer**, eastern regional manager, expressed his pleasure that Mr. **Toma** had agreed to join Sperry Corporation's marine systems sales organization. "We recognize the growing need for support of the marine market in the Miami area, and we believe that **George** will be an asset to Sperry and our customers," Mr. **Brauer** said. "This is particularly important during the introduction of our new sat-com and radar systems," he said.

Sperry is a major manufacturer of marine navigation and control systems and a leader in radar and collision avoidance systems for all types of vessels. Recently, Sperry announced the addition of a range of satellite communications systems and the powerful Sperry PC, as additions to its suite of available systems. Sperry also offers a full range of gyropilots, gyrocompasses, doppler sonar speed logs, ship stabilizer systems and steering systems. With the addition of Mr. **Toma**, sales and service of these products will be fully supported by Sperry in the Miami area.

**MAN B&W Engines Will  
Power Sitmar Cruise Ship  
Ordered At French Yard**

MAN B&W Diesel GmbH of Augsburg, West Germany, has received an order for four BL 58/64 type four-stroke diesel engines with a total output of about 53,000 bhp at 400 rpm from the French shipyard Chantiers de l'Atlantique in St. Nazaire, the shipbuilding division of Alsthom. The order totals more than 20 million DM (about \$10 million).

These four engines will supply the energy for the diesel-electric propulsion and electrical system of a cruise vessel ordered by Sitmar Cruises of Los Angeles. For increased passenger comfort, the engines will be seated on resilient mounts developed by MAN B&W. The engines and alternators will be connected via highly flexible couplings. Two three-phase propulsion motors of 12,000 kw each supplied by CGEE Alsthom will drive a fixed-pitch propeller. The 803.8-foot, 13-deck ship will have a capacity for 1,400 passengers in 700 cabins.

The MAN B&W 58/64 series engine is a modern, extraordinarily fuel-saving and low-maintenance four-stroke engine. Its specific fuel

consumption is said to be only 171 g/kwh. Already 23 engines of this type have been ordered from all parts of the world totaling nearly 300,000 bhp, including the 130,000 bhp of the new propulsion plant for the Queen Elizabeth 2.

For complete information and free literature on the MAN B&W 58/64 engine series,

Circle 26 on Reader Service Card

**MarAd Awards  
\$308,755 Contract  
To Seaworthy Systems**

The Maritime Administration has awarded a \$308,755 contract to Seaworthy Systems, Inc., Essex, Conn., for a demonstration project applying advanced turbocharger technology to the main propulsion diesel engines of river towboats. Turbochargers and monitoring

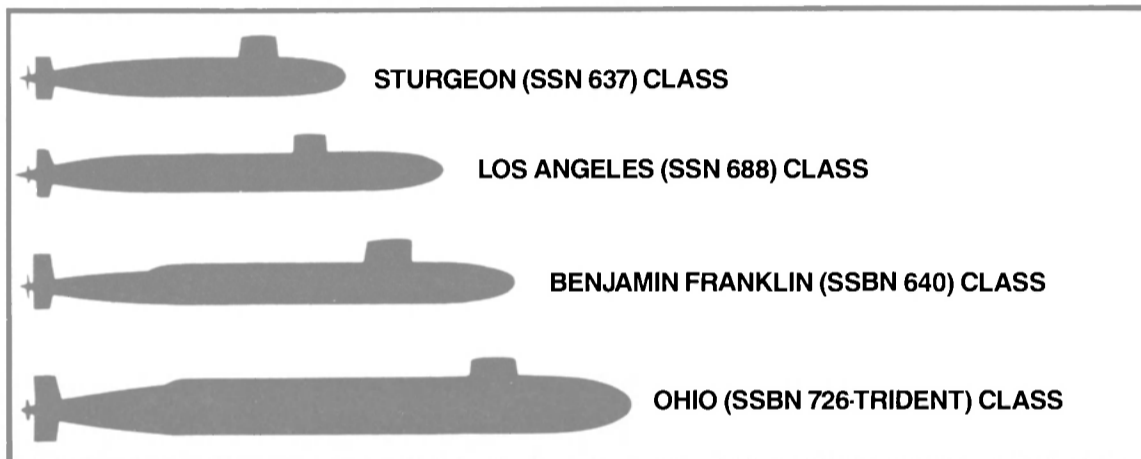
equipment will be retrofitted to two engines of an existing towboat, with onboard testing conducted for approximately one year. The overall project, including evaluations before the retrofit and following the completion of testing, is expected to take approximately two years.

For free literature on Seaworthy Systems,

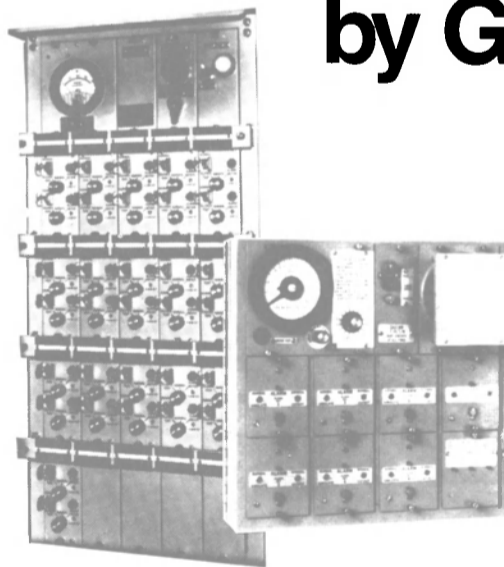
Circle 23 on Reader Service Card

**GALBRAITH-PILOT MARINE™**  
SUPPLYING RELIABLE MILITARY ELECTRONIC SYSTEMS  
DESIGNED TO MEET THE MOST EXACTING MILITARY  
SPECIFICATIONS FOR OVER 40 YEARS!

**Q. WHAT DO THESE SUBS  
HAVE IN COMMON?**



**A. MONITORING SYSTEMS  
by GALBRAITH-  
PILOT MARINE™**



These subs, along with other ships of the U.S. Navy, from frigates to aircraft carriers, are equipped with Galbraith-Pilot Marine Salinity Monitoring and Alarm Systems or Temperature Monitoring and Alarm Systems. GPM Salinity Monitoring and Alarm Systems provide accurate monitoring of salinity distilling plants and feed condensate systems.

GPM Temperature Monitoring & Alarm Systems warn of abnormal high (or low) temperature conditions of systems in many locations aboard a vessel.

We also furnish to the U.S. Navy, equipment and systems not otherwise covered by MIL-specs, such as Audio Systems, Whistle Timers, Control Systems, Wide Band Power Amplifiers, Battery Chargers and Mobile Power Supplies for aircraft starting.

Write for Complete Details to:



**GALBRAITH-PILOT MARINE AND  
CML MACARR DIVISIONS**

MARINE ELECTRIC RPD, INC. 666 PACIFIC STREET, BROOKLYN, NEW YORK 11217 U.S.A.  
TELEX: 125327. Tel: (718) 857-2400

Circle 311 on Reader Service Card

## Franken Appointed Service Manager At SWDiesel Gulf

Onno Franken has been named the new service manager for SWDiesel Gulf, Inc. of Harvey, La., a member of the Stork-Werkspoor Diesel Group. He has more than 10 years of experience in inspection, technical support, and repairs on the company's engines. This experience is now available to all users of Stork diesel in the U.S.

## FINCANTIERI IS SHIPREPAIRS & CONVERSIONS



20 graving docks for ships up to 400,000 tdw, 8 floating docks for ships up to 160,000 tdw, 13 km of repair berths and the frontage of the repair yards around the Italian coastline: the resources of Fincantieri's Shiprepairing Division are conveniently situated along the main and busiest Mediterranean shipping routes.

### YARDS FOR SHIP REPAIR:

- A.T.S.M. - TRIESTE YARD  
Tel. (O) 40 7391 - Tlx 460122 FINCAT I
- C.N.O.M.V. - VENEZIA YARD  
Tel. (O) 41 798511 - Tlx 410255 FINCVE I
- TARANTO YARD  
Tel. (O) 99 407134 - Tlx 860020 FINCTA I
- PALERMO YARD - Tel. (O) 91 546488-545288  
Tlx 720674, 910041 FINCPA I
- S.E.B.M. - NAPOLI YARD  
Tel. (O) 81 7858111 - Tlx 710040 FINCNA I
- O.A.R.N. - GENOVA YARD  
Tel. (O) 10 283801 - Tlx 270090 FINCOR I
- M.G.N. WORKS  
Tel. (O) 10 283811 - Tlx 270370 FINCMG I
- LIVORNO YARD  
Tel. (O) 586 34121 - Tlx 500071 FINCLI I

**FINCANTIERI**  
Cantieri Navali Italiani S.p.A.

SHIPREPAIRING DIVISION  
Via Cipro, 11 Genova/Italy Tel. (O) 10 59951  
Tlx 270102 FINCGE I

# ELECTRONICS UPDATE

## Siemens Offers Cost-Effective Solutions In Automation Systems

—Free Literature Available—

Siemens Energy & Automation, Inc., Power Engineering Marketing Division, is developing new cost-effective methods of ship control to concentrate control on the bridge and reduce the size of the crew required.

One development from Siemens is the SINEC H1 industrial bus, which serves to link the automation systems of a vessel to each other and with a combined central control station/bridge control center in such a way that the systems remain unaf-

ected by a fault in another system.

For central operation and monitoring tasks, the SIGOS 41 (Siemens Graphic Operating and Supervising System) is tied into the industrial bus. Up to eight video display terminals with color graphics capability can function in multi-terminal operation.

All monitoring, open and closed-loop control systems are configured autonomously and have their own operation and monitoring possibilities. The bus system and linked

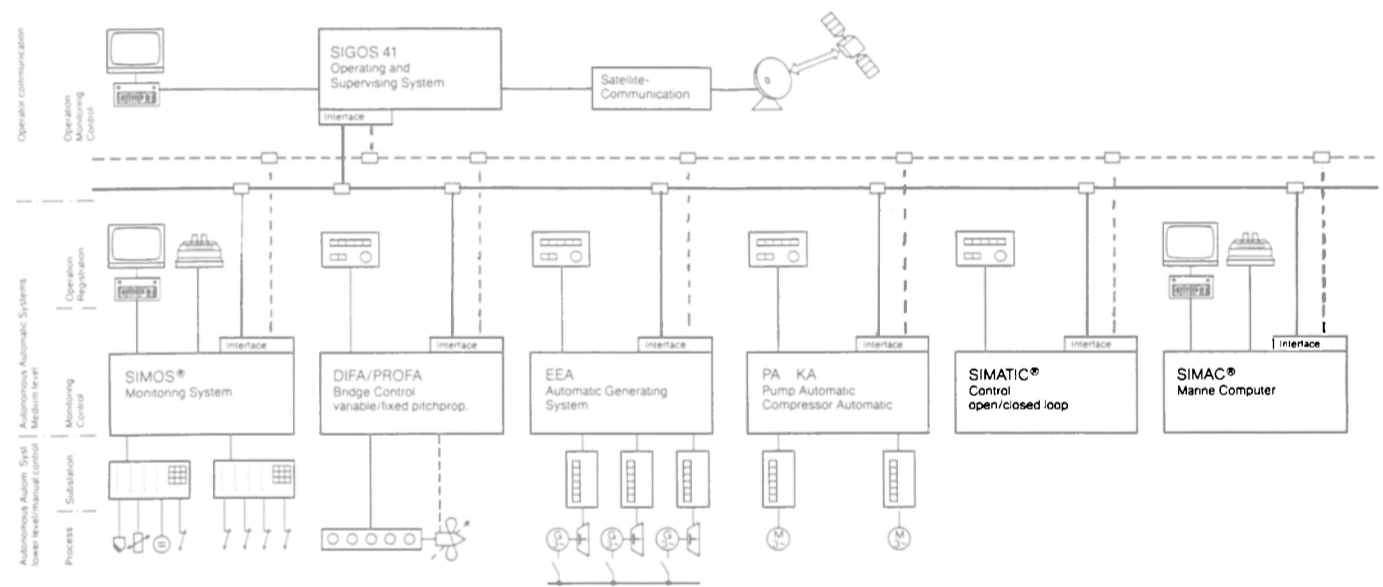
units insure: simple monitoring, operation and control; flexible adjustment to changing conditions; high system availability; continuation of automatic operation, even if central control system fails; and continuation of automatic operation, even if a bus fault occurs.

Siemens, which has provided marine automation systems for more than 1,400 ships worldwide, has supplied equipment to U.S. Lines, Lykes Brothers, Sea-Land Services and Bay Shipbuilding. In addition, the company has supplied the PTO generators for three Navy T-AOs under construction at Pennsylvania Shipbuilding and alternators for two T-AGSs being built at Bethlehem Steel.

Siemens is offering a free color brochure on their SINEC H1 industrial bus. The color publication details the features of the system and contains two schematic drawings of an automation network linked via the Siemens industrial bus. For a free copy,

Circle 98 on Reader Service Card

Automation System linked via the Siemens Industrial Bus



## Free Literature Offered On The GPS Core Module From Sperry Corporation

Sperry Corporation of Charlottesville, Va., has recently made available literature on the Sperry GPS Core Module the company has designed and manufactured specifically for the marine environment.

The Sperry GPS Core Module is a single-channel, C/A Code, sequenced receiver, with position calculation accuracy to 30M. Latitude, longitude and GMT are available every two seconds on either of two RS232 Ports.

The Core Module can be directly connected to Sperry Satnav's or Sperry PCs (or IBM compatible). Optional interfaces range from simple navigators to integrated systems.

Owners of one of the following satellite navigators will be interested to know that Sperry can up-

grade your existing set to a full Global Positioning System receiver: Sperry 501TR/GPS; Sperry SRN501; Sperry ESZ4000; and SAL4000.

The Sperry GPS Core Module enables the reception and navigation computations from both the Transit and GPS satellites to be displayed on your existing system display.

During the transition from Transit to GPS, the 501 TR/GPS will automatically select the best fix source and continue to provide you with total navigation data with no need for time-consuming switching or input coding. In GPS mode, the 501's format will provide continuous course readout and bottom speed at any depth.

When GPS is available, the Sat-

nav display shows GPS in lieu of "DRT" (dead reckoning time). Position updates then occur every two seconds with a smoothed display update every 10 seconds, completely independent of heading or speed input errors. Navigation calculations such as CMG/SMG/SET/DRIFT, and waypoints are virtually real-time information.

New Transit Satnav positions will continue to update and the "alert" page is updated as normal. When less than 3 GPS satellites are available, the display automatically reverts to "Transit" Satnav mode. Dead reckoning by log and gyro inputs then updates position information, rather than relying on inaccurate extrapolations of clock error using information from only two GPS satellites.

An alternative method to display LAT/LONG/TIME/SMG is to connect one of the GPS Core Module's RS232 outputs to a Sperry or compatible PC display units. With this method of display the navigator has many powerful uses for the GPS

Circle 275 on Reader Service Card

Core Module information, including: continuous LAT/LONG/SPEED; display GPS Satellite Advisory Software; use in digital track plotting. Suitable PCs are those with 8088 processors and 8087 co-processors. (Color monitor required for track plotting and Advisory Software).

Leading up to the time when enough GPS satellites are in operation to give worldwide two-dimensional coverage, there will be periods when continuous GPS Fixes are not available. Sperry addresses this situation in two ways: (1) With the GPS Core Module connected to the Satnavs above, the display automatically reverts to Transit mode when GPS fixes are not available; (2) Sperry provides free, the GPS Satellite Advisory Software diskette, which predicts periods of coverage and additional satellite parameters at any given position or date. This graphic software allows anyone with a Sperry PC compatible personal computer to have, at his fingertips, the necessary information for navigation planning.

The publication includes a lift-out technical data sheet that gives detailed performance information and physical facts.

For full details and a free copy of the color literature on the Sperry GPS Core Module,

Circle 95 on Reader Service Card

## MAN Consolidates Its High-Speed Diesel Engine Manufacturing Operations

Maschinenfabrik Augsburg-Nuernberg (MAN), the large German diesel engine manufacturer, has announced the consolidation of its high-speed diesel engine division with MAN Truck & Bus Corporation (MTB), a wholly owned U.S. subsidiary manufacturing buses at its plant in North Carolina.

This consolidation will provide an immediate expansion of the service facilities available to users of MAN high-speed diesels through the nationwide factory-trained representatives of MTB.

For additional information,

Circle 31 on Reader Service Card

### SALES AND MARKETING MANAGER SEEKS POSITION

(MARINE AND INDUSTRIAL AUXILIARY MACHINERY)

EAST COAST BASED MANAGER WITH TECHNICAL BACKGROUND SEEKS CHALLENGING POSITION. 21 YEARS INVOLVEMENT WITH ALL ASPECTS OF SALES, MARKETING, PLANNING AND SERVICE WORLDWIDE PRIMARILY FOR THE MARINE FIELD. EQUIPMENT INCLUDES BOILER FEED PUMPS, TURBOCHARGERS, AND MOUNTING AND REPAIR PRODUCTS. FIRST HAND EXPERIENCE WITH INTERNATIONAL AND DOMESTIC SHIPYARDS AND CUSTOMERS. EXPERIENCED WITH PROPOSALS, PRESENTATIONS AND LONG TERM DEVELOPMENT PROGRAMS WITH THE U.S. NAVY. INTRODUCED MANY OF THESE PRODUCTS INTO THE INDUSTRIAL FIELD. EXCELLENT CUSTOMER AND AGENT RELATIONS. RESUME UPON REQUEST.

Box 1103, MARITIME REPORTER  
118 E. 25th Street, New York, NY 10010

## Garlock Offers 40-Page 'Engineered Gasketing Products' Catalog

Garlock Inc. of Palmyra, N.Y., a leader in industrial packings, seals and gasketing since 1887, has announced the availability of their 40-page, four-color Engineered Gasketing Products Catalog, featuring such products as Blue-Gard® compressed gasketing, Gylon®, a su-

perior and unique material that is said to outperform PTFE, and Graph-Lock flexible graphite gasketing.

This catalog provides up-to-date engineering information, current product details and specifications, and the proper installation procedures. In addition, Garlock features an entire section devoted to their testing capabilities, showing actual photos and detailed explanation of ASTM standards.

Garlock, known for its expertise

in engineering, functional and material testing, manufacturing and quality control, assures its customers that the products they offer not only meet published or specified values, but also will function satisfactorily when properly handled, installed and maintained with equipment in good working condition.

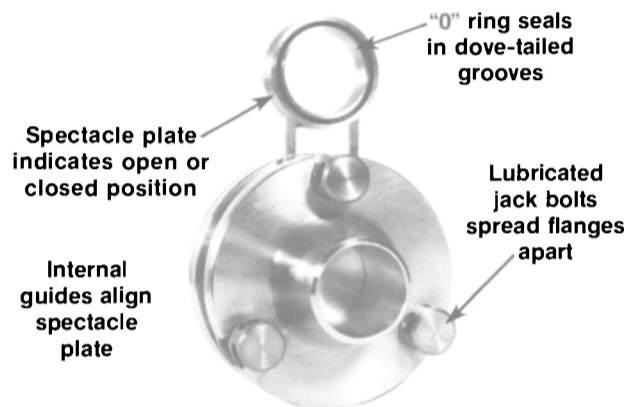
For a free copy of the 40-page color catalog from Garlock,

Circle 55 on Reader Service Card

## AMERICAN LINE BLINDS

The most positive dead-tight shutoff ever devised

## FORGED STEEL BODIES



- Butt weld or flanged
- All pressures and body materials
- In compliance with regulatory agency requirements

AMERICAN PIPING PRODUCTS, INC.

P.O. Box 1056 New Hyde Park, New York 11040  
516-352-8600

INTL TELEX: 230199 (SWIFT UR) ATT: GSS  
DOMESTIC TELEX: 960127 (SWIFT NYK) ATT: GSS

Circle 101 on Reader Service Card

**PNW900  
NAVTEX RECEIVER**

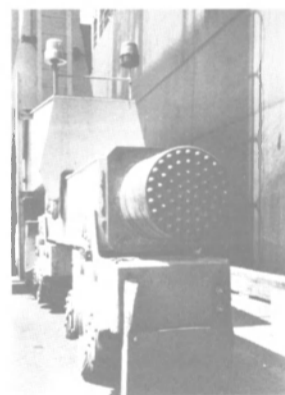
**THE NAVIGATOR'S AID, THE TELEX RECEIVER THAT BRINGS THE GOOD AND THE BAD NEWS —**

The professional Navtex receiver for professional mariners. Dual channels for national and international transmissions.

STANDARD RADIO & TELEFON AB TLX 17265 ITTSRT  
P.O. BOX 501 S-162 15 VALLINGBY SWEDEN

# NAVTEX

Circle 332 on Reader Service Card



## Polyurethane Crane Bumpers from M.E.K.

Cost and safety conscious terminal operators replace damaged hydraulic bumpers with our foamed polyurethane bumpers. In many cases, our units **cost less** than repairing old hydraulic equipment. **And our bumpers can add an extra 3 feet end approach per crane.**

## From New York... to Hawaii

We carry a full range of energy absorption capacities - from 75 to 725,000 ft.-lbs. - for compliance with O.S.H.A. & C.M.A.A. standards.

And because our bumpers have no moving parts, they require no maintenance.

Send for our new catalog.

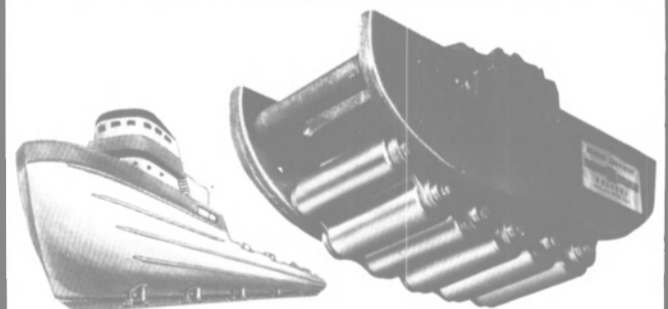
**M.E.K. Equipment, Inc.**

P. O. Box 2357  
Newport News, VA 23602  
(804) 872-0797



Circle 251 on Reader Service Card

# HILMAN ROLLERS



## Up to 1000 tons

Move massive machines, equipment — anything with minimum effort — maximum safety and speed. Use the chain rollers that incorporate more quality, performance design and product features than any other roller in the world. Hilman rollers will move and position heavy loads with ease and economy. Models range from 1000 pounds to 1000 tons. Write for informative brochure and get a move on!

TOLL FREE

**800-631-2177**

(Except in New Jersey)

**HILMAN**  
INCORPORATED

2604 Atlantic Ave., Wall (Belmar), NJ 07719-9737 USA  
201-449-9296 Telex 642260

Circle 211 on Reader Service Card

# PROFESSIONAL

**advanced marine**  
ENTERPRISES, INCORPORATED

*Celebrating  
10 Years of  
Service to  
Our  
Customers*

**SYSTEMS MANAGEMENT**  
Acquisition management  
Logistic support  
Technical documentation  
*Charles H. Piersall Jr., Division President*

**SHIP ENGINEERING & DESIGN**  
Feasibility studies through detail design  
Alteration & conversion design  
Systems engineering  
*Dr. Robert S. Johnson, Division President*

**FLEET SUPPORT & FIELD ENGINEERING**  
In-service engineering  
Overhaul & repair support  
Self-help & alteration installation  
*Gordon M. Green, Division President*

Suite 1300  
1725 Jeff Davis Hwy.  
Arlington, VA 22202  
703 979-9200

VIRGINIA BEACH • PHILADELPHIA  
OAKLAND • SAN FRANCISCO • SAN DIEGO

PUSHBOATS, TUGS, CREWBOATS, TENDERS  
BARGES OF ALL TYPES, INLAND OR OFFSHORE  
WILLIAM T. BERGERON  
BERGERON & ASSOCIATES  
MARINE BROKERS  
(504) 271-7171  
P.O. BOX 726 CHALMETTE, LA 70044  
"IF YOU NEED IT, WE CAN FIND IT"

**CDI MARINE CO.**  
NAVAL ARCHITECTS  
MARINE ENGINEERS  
EXECUTIVE OFFICE, JACKSONVILLE, FL  
904/723-2620

JACKSONVILLE, FL 904/724-9700  
PORTSMOUTH, VA 804-397-8000  
CHESAPEAKE, VA 804/543-4211  
HAMPTON, VA 804/627-4328  
KNOXVILLE, TN 615/693-0545  
PHILADELPHIA, PA 609/228-1853  
BOSTON, MA 617/878-8340  
BREMERTON, WA 206/479-8829  
SEATTLE, WA 206/235-0898  
PASCAGOULA, MS 601/762-0098  
YOKOSUKA, JAPAN 011-81-468-261911

A QUALITY TEAM

**DEL BREIT INC.**  
MARINE ENGINEERING CONSULTANT  
326 Picayune Place Suite 201  
New Orleans, La. 70130  
(504) 523-2801

**DESIGNERS & PLANNERS, INC.**  
NAVAL ARCHITECTS MARINE ENGINEERS

CRYSTAL PARK #1, SUITE 500  
2011 CRYSTAL DRIVE  
ARLINGTON, VA 22202  
(703) 892-8200  
TWX 710-955-1132

1941 OLD CUTHBERT ROAD  
SUITE 106  
CHERRY HILL, NJ 08034  
(609) 795-1170

190 TOWNE STREET  
NORWICH, CT 06360  
(203) 887-2501

797 BROADWAY  
BAYONNE, NJ 07002  
(201) 339-9446

**AMERICAN SYSTEMS ENGINEERING CORPORATION**  
Marine Engineers • Port Engineer Services  
Systems Analysts • Propulsion Plant Training  
Qualified Manufacturer's Field Representatives  
P.O. Box 8988 • Virginia Beach, VA 23452 • (804) 463-6666  
Philadelphia, PA • Pascagoula, MS • Virginia Beach, VA  
Arlington, VA • San Francisco, CA • San Diego, CA

**C.T. MARINE**  
NAVAL ARCHITECT • MARINE ENGINEER

TUGS  
TOWBOATS  
BARGES

18 Church Street, Georgetown, CT 06829  
Telephone: 203-544-8110  
Telex: ITT 4994761

**Ameritech Corp.**  
Commercial • Shipbuilding & Repair

7 Belver Avenue, Suite 215  
Quonset Point - Davisville Ind. Park  
North Kingstown, Rhode Island 02852

401 295-2663  
401 295-2664

**CHILDS ENGINEERING CORPORATION**  
Waterfront Engineering  
Diving Inspection  
BOX 333, MEDFIELD, MA 02052  
16171 359-8945

**DISALLE**  
MARINE CONSULTANT  
— PAINT CORROSION CONTROL —

"PROVEN VALUE FOR COATINGS MAINTENANCE INVESTMENT"

- EXPERT TECHNICAL SUPERVISION
- TANK COATINGS AND DRY DOCKING QUALITY ASSURANCE
- SPECIFICATIONS TAILORED TO YOUR EXACT NEEDS
- THOROUGH KNOWLEDGE OF CONVENTIONAL AND STATE OF THE ART MARINE COATING SYSTEMS
- RELIABLE, PHYSICAL AND WRITTEN SURVEY REPORTS
- PRECISE REPORTS ON SUPERVISED APPLICATIONS

P.O. BOX 8686 NAPLES, FLORIDA 33941  
813 643-0739 24 HOURS

**AMIRIKIAN ENGINEERING CO.**  
HARBOR AND DRYDOCKING FACILITIES  
FLOATING LIFT DOCK AND SHORE TRANSFER  
CONCEPTS, DESIGN, INVESTIGATIONS  
Chevy Chase Center Office Bldg.  
Suite 505, 35 Wisconsin Circle  
Chevy Chase, Md. 20015 (301) 652-6903

**Thomas Coudon Associates**  
Marine Equipment Sales  
6655 Amberion Drive Baltimore, Md. 21227 (301) 796-2525

NAVAL ARCHITECTS MARINE ENGINEERS  
**ART ANDERSON ASSOCIATES**  
Bremerton, WA (206) 479-5600  
Seattle, WA (206) 622-6221

**CRANDALL DRY DOCK ENGINEERS, INC.**  
Railway and Floating Dry Docks  
Waterfront Structures • Consulting Design • Inspection  
Dry Dock Hardware and Equipment  
21 Pottery Lane Dedham, MA. 02026  
Tel. (617) 329-3240 Telex: 924406

**ECO Inc.**  
Ship Design and Engineering  
Ports, Waterways and Offshore Facilities  
Military and Defense Systems  
1036 Cape St. Claire Center, Annapolis, Md. 21401  
(301) 757-3245

**Captain Astad Company, Inc.**  
Complete Marine Services - Full Broker Service  
Owners Representative Service  
Purchase & Sale of All Types of Vessels  
CAPTAIN A. J. ASTAD P.O. BOX 53434  
President NEW ORLEANS, LA 70153  
PHONE (504) 529-4171 (24 HRS.) TELEX: 8821298 ANSWERBACK: "ASTAD"

**C. R. CUSHING & CO., INC.**  
NAVAL ARCHITECTS, MARINE ENGINEERS  
& TRANSPORTATION CONSULTANTS  
18 Vesey Street  
NEW YORK, N.Y. 10007  
TEL (212) 964-1180 CABLE CUSHINGCO  
TX: 752481

**ENCON MANAGEMENT & ENGINEERING CONSULTANT SERVICES**  
Marine Structures • Engineering Analysis • Marine Survey  
Project Management • Loss Prevention • Naval Architecture  
P.O. Box 7760 • Beaumont, Texas 77706  
(409) 866-9158

**Ocean Engineering Centre**  
SHIP-MODEL TESTING

- Resistance Tests • Flow Visualization
- Wake Surveys
- Towed Directional Stability Evaluations
- Seakeeping

For information Contact:  
**B.C. Research Ocean Engineering Centre**  
3650 Westbrook Mall,  
Vancouver, Canada V6S 2L2  
Telephone (604) 224-4331  
Telex 04-507748

**DLI MARINE VIBRATION ANALYSIS NOISE CONTROL**  
253 Winslow Way West, Bainbridge Island, WA 98110  
(206) 842-7656

Measurement, recording and analysis of mechanical, structural and electrical phenomena.

**Envisions ENGINEERING VISIONS, INC.**  
Formerly PRC Guralnick and PRC Marine Services  
Naval Architects & Marine Engineers  
1111 Bay Boulevard (619) 575-3300  
Chula Vista, CA 92011

BARGES - TUGS - TOWING *Jack Faulkner, Inc.* Cable Address: FAULKBOAT  
CHARTERS AND SALES ESTABLISHED 1954 (312) 798-2419  
PROCUREMENT AGENTS  
ON INLAND AND OCEAN TOWING

P.O. Box 371  
2419 Caddy Lane, Flossmoor, Illinois 60422  
"TOWING ANYWHERE THERE IS WATER"

**DESIGN ASSOCIATES, INC.**  
M. KAWASAKI  
14360 Chef Menteur Highway  
New Orleans, Louisiana 70129

Naval Architects Marine Management  
Marine Engineers Transportation Consultants  
Phone: (504) 254-2012 TWX 810-951-5317

**CHRISTOPHER J. FOSTER, INC.**  
WORLD-WIDE EXPERIENCE AS DESIGNERS OF  
GRAVING DOCKS • MARINE STRUCTURES  
SHIPYARDS • MODERNIZATION • PORT FACILITIES  
OFFSHORE TERMINALS • FLOATING DRYDOCKS


MARINE ENGINEERS • NAVAL ARCHITECTS  
CONSULTING ENGINEERS  
PORT WASHINGTON NEW YORK 11050  
(516) 883-2830 TELEX 14-4674 CABLE: "CEFOSTA"

# GIBBS & COX INC

NAVAL ARCHITECTS & MARINE ENGINEERS

119 West 31st Street • New York, N.Y. 10001  
(212) 613-1300

## JOHN W. GILBERT ASSOCIATES, INC.

Naval Architects  Marine Engineers

66 LONG WHARF  
BOSTON, MASS. 02110  
(617) 523-8370

Seattle, Washington  
Phone: 206-624-7850  
Telex: 882053

**THE GLOSTEN ASSOCIATES, inc.**  
CONSULTING ENGINEERS SERVING THE MARINE COMMUNITY

## Phillip Gresser Associates Ltd.

MARINE ENGINEERS  
CONSULTANTS & SURVEYORS

3250 SOUTH OCEAN BLVD.  
PALM BEACH FLORIDA 33480 TEL: (305) 586-0813

## MORRIS GURALNICK ASSOCIATES, INC.

NAVAL ARCHITECTS MARINE ENGINEERS 

620 Folsom St., Suite 300, San Francisco, CA 94107  
Main Office: (415) 543-8650  
Ventura Office: (805) 656-2322  
East Coast: (703) 471-7534



**J.J. HENRY CO. INC.**  
naval architects • marine engineers • marine consultants

40 EXCHANGE PLACE  
NEW YORK, N.Y. 10005  
TEL (212) 635-4000  
TWX 710-581-2021, TELEX 422-036

Cohasset, Mass (617) 383-9200 Moorestown, N.J. (609) 234-3880 Sturgeon Bay, Wis. (414) 743-8217



LABORATORIES, INC.

P.O. Box 226 Buckingham, Virginia 23921  
(804) 969-4264

- Underwater Explosion Shock Testing (MIL-S-901)
- Fixture Design and Fabrication
- R & D Support
- East & West Coast Facilities
- Test Program Management
- Field Testing with Craft & Engineering Support
- Pitch and Roll Simulation to 20,000 Lbs.

## C. Raymond Hunt Associates, Inc. High Speed Powerboat Design

69 Long Wharf - Boston, MA 02110  
Tel: (617) 742-5669/TX: BSTLX 294116 (Attn. Hunt)



**HYDROCOMP** INC

Naval Architects  
Marine Engineers  
Marine Design Computer Services

10 CUTTS ROAD  
PO BOX 865  
DURHAM, NH 03824  
603-868-2560



## INTRAMARINE, INC.

P.O. BOX 53043 JACKSONVILLE, FL 32201  
(904) 353-0828 TELEX: 56-8421

ALSO NEW YORK, HAMBURG, PIRAEUS  
• HULL • MACHINERY • CARGO • YACHT SURVEYS



## JJH of Virginia

• NAVAL ARCHITECTS • MARINE ENGINEERS • MARINE CONSULTANTS •

"Quality First"

CHERRY HILL, NJ 609-779-8025 PORTSMOUTH, VA 804-399-4096 ARLINGTON, VA 703-920-3435 NEWPORT NEWS, VA 804-873-0028



## R. D. Jacobs and Associates

Naval Architects • Marine Engineers  
Consulting Engineers

### MARINE AND STATIONARY PROJECTS

Marine Surveyors; Project Specifications and Designs;  
Energy Efficient Concepts  
Owner Representation Services; Machinery  
Casualty Investigations;  
Practical Engineering Economics Analyses

11405 MAIN ST., ROSCOE, IL 61073 815-623-6760



NAVAL ARCHITECTS & MARINE ENGINEERS

P.O. Box 7515 Metairie, LA 70011 504/887-6864 M. D. Korkut President 3000 Kingman Street Metairie, LA 70006

Unique marine designs, software, and project management

## JAMES S. KROGEN & CO., INC.

NAVAL ARCHITECTS & MARINE ENGINEERS

Tel. (305) 642-1368

1515 N.W. 7th St., Suite 124, Miami, FL 33125



**RODNEY E. LAY & ASSOCIATES**  
NAVAL ARCHITECTS

NAVAL ARCHITECTS • MARINE ENGINEERS

13891 Atlantic Blvd.

Jacksonville, Florida 32225

(904) 246-6438 TWX 810-828-6094



## Alan C. McClure Associates, Inc.

NAVAL ARCHITECTS • ENGINEERS

2600 South Gessner • Suite 504 • Houston, Texas 77063  
(713) 789-1840 • Telex 792397

## John J. McMullen Associates, Inc.



Naval Architects • Marine Engineers • Transportation Consultants

New York, NY • Arlington, Va. • Newport News, Va • Houston, Tx  
Ventura, Ca. • Bath, Me • Seattle, Wa • Pascagoula, Ms

One World Trade Center/Suite 3000/New York, New York 10048/(212)466-2200



Speed & Propulsion Power Policy

**FENDALL MARBURY**  
NAVAL ARCHITECT

1933 LINCOLN DRIVE  
ANNAPOLIS, MARYLAND 21401 (301) 268-6168

## MARINE DESIGN, INC.

NAVAL ARCHITECTS • MARINE ENGINEERS

Formerly TAMS INC. Naval Architects, Estb. 1865.

401 BROAD HOLLOW RD. (Rt. 110)  
MELVILLE, L.I., N.Y. 11747  
(516) 293-4336



SPECIALISTS IN TUGS AND BARGES



MARINE ENGINEERS

### THE PROFESSIONALS

Maintenance, Repair &  
Retrofit Specialists

1010 Turquoise St., Ste. 217, P.O. Box 99546  
San Diego, CA 92109. (619) 488-7703

## MARITIME DESIGN, INC.

NAVAL ARCHITECTS  
MARINE CONSULTING  
MARINE DESIGN



MARINE ENGINEERS  
COMPUTER PROCESSING  
MARINE SURVEYS

2955 HARTLEY RD • JACKSONVILLE, FL 32217 • (904) 268-9137

## R. CARTER MORRELL

MARINE CONSULTANT

715 S. CHEROKEE  
BARTLESVILLE, OK 74003 918-336-8306

TELEPHONES: 943-7070  
(212) / 943-7073  
NIGHT MORRISTOWN, N.J.  
(201) 538-1789  
TWX  
710-581-2872

## MOWBRAY'S TUG AND BARGE SALES CORP.

21 WEST STREET, NEW YORK, N.Y. 10006

YOUR MARINE CONSULTANTS



## NELSON & ASSOCIATES, INC.

MARINE

SURVEYORS  
ENGINEERS

CONSULTANTS  
APPRAISERS

610 N.W. 183 St., Miami, Fla. 33169 (305) 653-4884  
Telex: 44-1869 Cable: NELSURVEY

## Vickum & Shaulding Associates, Inc.



naval architects • marine engineers  
zone outfitting design  
marine consultants

2701 first avenue, seattle wa. 98121-1123  
(206) 728-4444 • 1lx: 320053

## NORTHERN MARINE

Naval Architecture - Marine Engineering  
Marine Surveying

P.O. Box 1169 Traverse City, MI 49685  
(616) 946-5959

## OMEGA MARINE ENGINEERING SYSTEMS, INC.

NAVAL ARCHITECTS, MARINE AND STRUCTURAL ENGINEERS

11757 KATY FWY.  
HOUSTON, TEXAS 77079



TEL (713) 870-1111  
TELEX 6868507

## PILOTAGE CONSULTANTS, INC.

Capt. Jim Stillwaggon P.O. Box 2046  
516-742-2467 New Hyde Park, NY 11040



VIRGINIA BEACH  
(804) 490-5000

MARINE ENGINEERS NAVAL ARCHITECTS  
LOGISTICS ENGINEERS

ARLINGTON BREMERTON JACKSONVILLE  
SAN DIEGO PHILADELPHIA  
LAKEHURST CHARLESTON SAN FRANCISCO

## M. ROSENBLATT & SON, INC.

NAVAL ARCHITECTS AND  
MARINE ENGINEERS

New York City  
350 Broadway  
(212) 431-6900

San Diego  
1007 Fifth Avenue  
(619) 238-1300

San Francisco  
667 Mission Street  
(415) 777-0500

Charleston  
Heights, S. C.  
3370 Rivers Avenue  
(803) 744-1686

Arlington, Va.  
2341 Jefferson Davis Highway  
(703) 892-5680

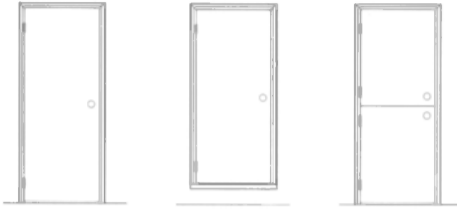


M. ROSENBLATT & SON, INC.  
NAVAL ARCHITECTS AND MARINE ENGINEERS

## JOINER DOORS

THE NAVY'S LIGHTEST AND STRONGEST  
JOINER DOORS - IN STOCK

Lightweight Honeycomb Doors  
(Meets U.S. Navy Specs)



TYPE 1

TYPE 2

TYPE 3

\* Aluminum Honeycomb

\* CRES Honeycomb

\* GRP/Nomex<sup>®</sup> Aramid

\* Steel Honeycomb



TYPE 4



DOUBLE DOOR



ADVANCED STRUCTURES CORP.

235 WEST INDUSTRY COURT  
DEER PARK, NEW YORK 11729  
(516) 667-5000

NOMEX<sup>®</sup> ARAMID IS A TRADEMARK OF DUPONT  
Circle 245 on Reader Service Card

**BAIER HATCHES**

**A WISE BUYER BUYS  
BAIER HATCHES**  
tested and guaranteed watertight



OVER THE YEARS, WE HAVE  
LEARNED THAT PRODUCING  
A GOOD PRODUCT AND  
GIVING CUSTOMER SERVICE  
IS THE BEST ADVERTISING.

- Material: aluminum, bronze, galvanized steel.
- SAFETY: never iced in as the t-wrench is removable.
- TAMPER PROOF: you lock it and it stays locked until you unlock it.
- MAINTENANCE: only two moving parts.
- APPROVED AND USED: ABS, USCG, US Navy, Corps of Eng., Canadian Dept. of Transport.
- SHAPES AND SIZES: flush round 8, 14, 16, 18, 20, 22, 24, ovals flush plain or hinged, 13" X 20", 15" X 24. Coatings available for all sizes.

We take this means of thank-  
ing our many customers for  
their past business and trust  
we can continue to serve you.  
For a free engineering  
catalogue write or phone:



7527 NE 33rd Dr.  
Portland, Oregon 97211  
503 287-8885  
Eastern Representative: MAPECO  
20 Vesey Street  
New York, NY 10007  
212 752-7863

Circle 158 on Reader Service Card

## Hempel Adds 'Combic' To Its Range Of Antifouling Products —Literature Available

Hempel's Marine Paints, the worldwide supplier of coating systems to the marine industry, has published a free six-page brochure on Combic, a new product recently added to its range of antifouling products. Combic is an intermediate solution positioned between traditional low-cost and non-polishing systems on the one hand and superior self-polishing antifouling systems on the other.

Combic is purpose-designed to meet the needs of those owners who want to upgrade their specification from a non-polishing antifouling, but without incurring the additional costs involved in choosing the superior self-polishing module solution.

Hempel's Combic has been extensively tested in service and already specified by such owners as BP London, K.I. Larsen, Thenamaris, Fafalios Ltd., Westfal-Larsen, Lyras Brothers, etc.

Combic is a high-build, high-solids coating

that can be applied in high dry film thicknesses. Through its controlled polishing mechanism it exposes a fresh bioactive surface during the entire life of the coating, minimizing roughness development at the same time.

The drydocking interval is directly related to the film thickness applied. A short to medium drydocking interval can be achieved by only applying one coat, while longer intervals are attainable through a two-coat approach.

The product can be applied directly on top of suitable existing systems without the need for a sealer.

Like its Nautic and Classic sisters, Combic forms part of Hempel's tailor-making approach to antifouling systems—a concept which provides owners with a wide range of alternative choices from which to select the optimum system for any given vessel, regardless of its age, size or operating conditions.

For more information and a free copy of the six-page color brochure from Hempel's Marine Paints,

Circle 69 on Reader Service Card

### STV/SANDERS & THOMAS

Marine Engineering • Systems Analysis  
Consulting/Design Engineering

1745 Jefferson Davis Highway  
Arlington, VA 22202

703/521-5416

### SARGENT & HERKES, INC.

NAVAL ARCHITECTS • MARINE ENGINEERS

1005 INTERNATIONAL BLDG., 611 GRAVIER ST  
NEW ORLEANS, LA 70130

(504) 524-1612

Quality Management, Training, Support,  
ILS, and Marine Engineering Services



23 Locations Worldwide

SYSTEMS ENGINEERING ASSOCIATES CORPORATION

520 FELLOWSHIP ROAD, SUITE C-306  
MT. LAUREL, NEW JERSEY 08054  
(609) 866-2400

SEACOR is a Subsidiary of Day & Zimmermann, Inc.

*Seaworthy  
Systems, Inc.*



Marine Engineers and Naval Architects  
Energy Reduction Fuel Technology

Main Street  
Essex, Conn 06426  
P.O. Box 205  
Solomons, MD 20688

17 Battery Pl  
N.Y. N.Y. 10004  
2 Skyline Place, Suite 311  
Falls Church, VA 22041

TW X: 7 104580271

### GEORGE G. SHARP, INC.

MARINE ENGINEERS  
NAVAL ARCHITECTS



SYSTEMS ANALYSTS  
MARINE SURVEYORS

100 Church Street  
New York, N. Y. 10007  
(212) 732-2800

Arlington, Virginia 22202  
(703) 892-4000

Virginia Beach, Va. 23462  
(804) 499-4125

Voorhees, N. J. 08043  
(609) 772-0888, 89

- Marine Surveyors
- Port Engineer Service
- On-Off Hire Surveys
- Damage Surveys
- Voyage Repair Supervision
- World Wide Travel

### SIMMONS ASSOCIATES

Naval Architects & Marine Engineers



P.O. BOX 760 • SARASOTA, FLORIDA 33578 • USA

(813) 921-1231 \* TLX 9103808486

### R.A. STEARN INC.

NAVAL ARCHITECTS and MARINE ENGINEERS

253 N. 1st Avenue

Sturgeon Bay, WI 54235

Phone (414) 743-8282 TLX 753166, ESL 62388810

Trans-International Marine Services Corp.



**TIMSCO**

MAINTENANCE MONITORING SYSTEMS

INVENTORY CONTROL SYSTEMS

622 Azalea Road

Mobile, Alabama 36609

205/666-7121

### Tracor Hydronautics

INTEGRATED ENGINEERING SERVICES  
FOR THE MARINE INDUSTRY

RESEARCH • DEVELOPMENT  
DESIGN • TESTING

HYDRONAUTICS SHIP MODEL BASIN

**Tracor Hydronautics**

7210 Pindell School Road

Laurel, Maryland 20707

Telephone: (301) 776-7454

Telex: 8-7585

### VIBRANALYSIS ENGINEERING CORP

- PREDICTIVE MAINTENANCE PROGRAMS
- VIBRATION ANALYSIS
- FIELD & SHOP BALANCE
- ACOUSTICAL CONSULTANTS
- COMPUTERIZED DATA COLLECTION
- MARINE APPLICATIONS

VIBRANALYSIS ENGINEERING CORP

4380 S. Wayside, Suite 100

Houston, TX 77087



713-643-1051

### THOMAS B. WILSON ASSOCIATES

NAVAL ARCHITECTS & MARINE ENGINEERS

1258 N. AVALON BLVD. • WILMINGTON, CA. 90744

PHONE (213) 518-0940

# CLASSIFIED AND EMPLOYMENT ADVERTISING

**HOW TO PLACE CLASSIFIED ADVERTISING:** Mail clearly written or typed copy to: MARITIME REPORTER, 118 East 25th Street, New York, NY 10010. Include any photos, drawings or logos if required. Specify size of ad and number of insertions . . . Classified Advertising — Per Issue Rate: Classified advertising is sold at a rate of \$70 per column inch . . . MARITIME REPORTER'S classified section carries more advertising and sells more products than any other publication in the marine industry. Closing date for classified advertising is 20 days prior to the date of the issue. For further details contact John C. O'Malley at (212) 477-6700. Send all advertising material to MARITIME REPORTER And Engineering News, 118 East 25th Street, New York, NY 10010.

## PROJECT ENGINEER

Degreed engineer, preferably Naval Arch/Marine Eng. with 5 years experience in a shipyard design engineering capacity. Candidate should be able to demonstrate the ability to administer and coordinate such projects as fishing, passenger and other small vessels; commercial and government overhauls. U.S. citizenship required.

Please submit your resume in confidence to:

Attention: Chief Engineer

**BENDER SHIPBUILDING & REPAIR COMPANY, INC.**  
P.O. Box 42, Mobile, AL 36601

EQUAL OPPORTUNITY EMPLOYER

## MARINE ENGINEER

New York Maritime College (Fort Schuyler) Training Ship EMPIRE STATE requires a full time 1st Assistant Engineer, USCG 1st Assistant Engineer, steam, unlimited horse power license required. Annual salary \$35,000 plus excellent benefits package. Free berthing onboard. Ship deployed two months each summer, remainder of year at College pier. Call/send resume to Chief Engineer, T.S. EMPIRE STATE, Maritime College, Bronx, NY 10465, Tel 212-409-7200.

## PORT ENGINEERS

American Systems Engineering Corporation has openings for experienced Port Engineers. Our Port Engineers maintain selected U.S. Navy ships in a Phased Maintenance Program.

Applicants should be degreed Marine Engineers holding USCG Engineer's License. U.S. citizenship is required.

Positions available in Honolulu, Hawaii; Long Beach, CA; Charleston, SC; Mayport, FL.

Send resume and salary requirements to:

American Systems  
Engineering Corporation  
Box 8988  
Virginia Beach, VA 23452

## MARINE SURVEYOR

Recent academy/maritime college graduate with engineering background and licenses. Good Academic background and basic naval architectural knowledge. Two to four years sailing or related shore experience. Will be trained. Work in South Florida with travel required. Reply to:

Box 1101 MARITIME REPORTER  
118 East 25th Street New York, NY 10010

## MARINE ENGINEER

41; B.Sc.; 20 yrs. substantial experience with operation, maintenance, repair and construction of ships seeking responsible position in Japan/Korea supervising construction of new buildings/managing operation, maintenance of existing vessels. Available immediately. C.V. and references upon request.

Box 706 MARITIME REPORTER  
118 East 25th Street New York, NY 10010

## MANAGEMENT OPPORTUNITIES! SHIPBUILDING—SHIP REPAIR

MANAGER OF BUSINESS DEVELOPMENT  
MANAGER, SHIP REPAIRS  
MANAGER, QUALITY ASSURANCE (SMALL YARD)  
MANAGER, NAVAL ARCHITECTURE (MAJOR YARD)  
SUPERINTENDENTS (HULL, MACHINERY)  
FOREMEN (PAINT, WELDING, ELECTRICAL)  
ASSISTANT CHIEF ESTIMATOR (MAJOR YARD)  
SENIOR ESTIMATORS/PROJECT MANAGERS (SEVERAL)  
PURCHASING AGENT (MAJOR YARD)

We specialize in recruiting key management personnel for the shipbuilding and ship repair industry. All fees and expenses are company paid. The above positions, and many others, are now open. Call Mr. M.A. Weeks at (205) 661-2294 as soon as possible or send resume immediately!

WEEKS AND ASSOCIATES  
Management Consultants  
921 Cottage Hill Avenue, Mobile Alabama 36609

Dockside ship repair company has need for an experienced ship superintendant. Must have a working knowledge of machinery and steel repairs. Job description also requires the ability to read and write specifications. Send resume and salary requirements to: P.O. Box 2162, Savannah, Ga. 31402.

## MANAGER, NEW BUSINESS DEVELOPMENT

Major Northwest marine subsidiary of a Fortune 100 corporation seeks a Manager of New Business Development with extensive, demonstrated experience (10 years) in planning, estimating and acquisition of U.S. Naval and/or commercial contracts. The selected candidate will plan, develop and direct business development and marketing activities. Competitive salary and benefits package. Send resume including salary history to:

Manager, New Business Development  
Box 1102 MARITIME REPORTER  
118 East 25th Street New York, NY 10010  
Equal Opportunity Employer: M/F/V/H

Ship Repair Representative in Norfolk—Newport News area—Prefer individual with established record with Navy and Marad.

Box 902 MARITIME REPORTER  
118 East 25th Street New York, NY 10010

## MASTER

Available for immediate long or short term position. Multi licensed USCG, British, Liberian. Good references, accident free record. Tug/barge, products and Bulk experience. Would consider cargo surveying work around the Gulf coast.

Write Route 2, Box 276, Fairhope, Ala 36532.

## WANTED MARINE ENGINEER & FERRY PILOT

VIRGINIA DEPARTMENT OF HIGHWAYS  
& TRANSPORTATION  
Waverly Residency  
NEEDS

RIVER FERRY ENGINEERS  
&  
RIVER FERRY PILOTS

at  
Jamestown-Scotland Ferry  
Near Williamsburg & Major  
Military Installations in the Area

### RIVER FERRY ENGINEER

QUALIFICATIONS: Must hold U.S. Coast Guard License as Chief Engineer of an inspected vessel propelled by a diesel engine of at least 1600 horsepower. Physical ability to attend to boat operations and respond to emergencies.

### RIVER FERRY PILOT

QUALIFICATIONS: Must hold U.S. Coast Guard License as master and first class Pilot of ferryboats of at least 1000 gross tons on inland waters. Physical ability to attend to boat operations and respond to emergencies.

### BASE SALARY: Up to \$26,160

Any time worked over 40 hours per week compensated for at 1½ times the hourly rate for the Base Salary shown above.

FRINGE BENEFITS: Vacation; sick leave; State paid retirement, group life insurance, and hospital insurance

CALL 804-834-2333 for appointment for interview or write: Resident Engineer, Virginia Dept. of Highways & Transportation, P.O. Box 45, Waverly, Va. 23890-0045

AN EQUAL OPPORTUNITY EMPLOYER



## COVERED BARGES

Former N.Y. Harbor  
Coffee Barges:

116 x 34 x 10.6

Excellent Condition

\$100,000.00

CALL ELIZABETH GAY  
212/269-3200

For Barge Rentals or a  
Complete Marine Package

## Call the Barge People.

Our experience and knowledge in serving a wide variety of industries enables us to provide the right size and type of barge and tow to make your marine operations profitable

- Large, diversified fleet for inland, oceans and speciality service
- Experience in arranging and managing marine packages
- 20 convenient fleet locations along Gulf Coast and upper river

Rentals - Sales - Service

**New Orleans**  
(504) 949-7586  
Telex 58-4393  
2300 Surekote Rd  
N O - LA 70117

**Houston**  
(713) 452-5887

**Parkersburg**  
(304) 485-4494

**St. Louis**  
(314) 469-0510



Estimator, Full time—experienced individual with proven track record wanted by Ship Repair Company in New York Area.

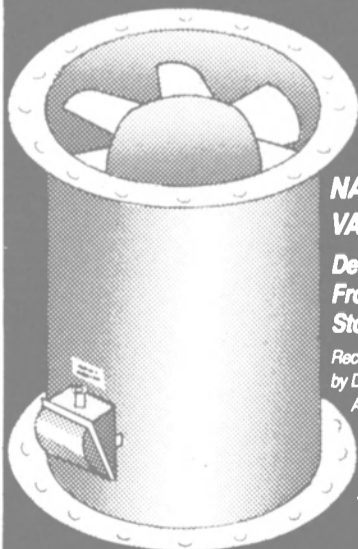
Box 901 MARITIME REPORTER  
118 East 25th Street New York, NY 10010



**L.S.T. BARGES**  
3 Available. \$100,000 each.  
Located: Norfolk, VA.  
Contact: George Flanagan, 804/627-3651

### JON M. LISS ASSOCIATES, INC.

411 BOREL AVENUE, SUITE 505 - POST OFFICE BOX 5554 - SAN MATEO, CALIFORNIA 94402-0554



**NAVY STANDARD  
VANEAXIAL FANS**

Delivery  
From  
Stock

Reconditioning and Rewinding  
by Dahl Beck Electric.  
Available with Warranty.

**(415) 573-9191**

TELEX 17-2655 GOJON SMT

### Director of Marine Personnel, Purchasing and Marine Operations

Responsibilities include: Employment of ships' crew, their training, upgrading and scheduling; bunkering vessels; periodic surveys for classifications; negotiation of commercial contracts with vendors for spare parts and supplies, including deck, engine and steward provisions; liaison with deck, engine and steward departments, which entails considerable travel between the ports of Tampa, Port Canaveral and Miami; supervision of all shipments to and from the vessels; negotiating settlement agreements under the terms and conditions of the Danish Sea Insurance Convention (hull & machinery) including prosecution of all claims; budgetary supervision for vessels' operations; drydocking supervision and negotiation for applicable charges. Requirements: eight years experience in the job offered or two years managerial experience in marine purchasing and two years managerial experience in marine personnel and four years managerial experience in marine operations; Bachelor in management or equivalent in terms of academic or work experience; must speak Danish, use telex, facsimile machine. 40 hours. 9:00 to 5:00 P.M.; \$50,700/yr.

Submit RESUME ONLY to: Job Service of Florida, 1350 NW 12 Avenue, Room 280, Miami, Florida 33242. Ref: Job Order #FL 4540479.



### TUGBOAT

Built 1940. Steel Hull.  
1800 HP, GM 16-567 BC  
Gross Tonnage 138, Net. 66  
75.9 x 23.05 x 10.8  
Located: San Juan, PR. \$95,000  
Contact: Fernando Ramirez, 809/721-8888.

### Attention Tug Boat Operators and Marine Engine Retrofitters!

For sale on a make an offer basis (2) new Cleveland Diesel 278A series engines which was acquired from the Navy. A description of the engines is outlined below. If interested please call (814)-767-9490 and ask for Steven Leydig.

- (2) Cleveland Diesel Marine Engines  
model: 278A (older version of current 567 series)  
serial #45093/45095  
cylinder: (8)  
H.P.: 640  
RPM: 675

Condition: new unused on skids ready for shipment  
Each engine has Falk Marine Reduction Gear's with the following spec's.

- (2) Falk Manufacturing  
m.o. #165-099  
serial # 80/83  
H.P. rating: 700  
Input Rpm Max: 750  
Output Rpm: 246

### LIFE IN PARADISE

Towing/Salvage Business. 36-foot steel tub/workboat. All equipment turnkey. 1985 net \$70,000. Price \$125,000 or best offer. No license required. Will train.

Call (809) 461-2477 or  
Box 440  
St. John's, Antigua  
West Indies

### \*\*ATTENTION\*\*

OWNER OPERATORS

### SHIP DOCKING FRANCHISES AVAILABLE

We supply the contracts and the contacts, and legal services to set you up in the ship docking business in any U. S. Port. We need owner operators **ONLY** that have at least two 1,800 H.P. tugs with the desire to move into the highly lucrative ship docking business.

We will train your docking pilots and your crews in the fine art of ship handling. **WE HAVE 2 EAST COAST PORTS AVAILABLE IMMEDIATELY THAT WE CAN GUARANTEE 50% OF THE SHIP DOCKING BUSINESS (\$1,000,000 ANNUAL SALES).** We have a proven track record of success. Write: TOWBOATS, c/o Box 801, Maritime Reporter, 118 East 25th Street, New York, NY 10010.

### MAKE AN OFFER 120' x 30' DECK BARGE MODIFIED FOR HAULING CUTTINGS (80' x 26' x 2')

CONTACT: JIM O'NEILL  
GREYHOUND LEASING &  
FINANCIAL CORPORATION  
(602) 248-5454

### FOR SALE

2—OFFSHORE FERRIES  
1-150'x40' x 9.5' 1800 HP  
FM38D 8½—685 PASSENGERS  
18-20 CARS  
ASKING \$495,000.00  
1-135'x29'x8.5' 1000 HP  
CUMMINS-12 CARS, 535 PASSENGERS  
ASKING \$325,000.00  
BOTH VESSELS USCG CERTIFIED  
THROUGH JULY 1987  
R.J. KEHOE CO.  
39 MILL ROAD, EASTCHESTER, NY, 10709  
914-961-4873

### PORT OF SINGAPORE

and neighboring ports

We provide efficient and economic services to shipowners/operators worldwide: \* Full Ship Agency Services \* Ship management \* Stores/Spares Supplies \* Bunkering \* De-stopping at Offport Limits \* Technical Services \* Crew Recruitments \* Brokerage \* Appointed Special Agent for Vanuatu Registration/Maritime Services

### RICHFIELD MARINE AGENCIES (S) PTE LTD

(A Subsidiary of QAF Ltd)  
10 Anson Road, #19-04A  
International Plaza, Singapore 0207  
Tel: 2250133, Telefax: 2257115  
Tlx: RS 55622 Riship, Cable: Sealift  
24 Hours Answering Tel: 5330088  
Person to Contact: C. C. TAN

Mt. Hope & Narragansett Bays  
**DOCKING & COASTAL TOWING**  
All Diesel Fleet  
**PROVIDENCE STEAMBOAT COMPANY**  
1 India St., Providence, RI 02903  
401-331-1930

### DONATE YOUR BOAT ETC. THIS MAY BE YOUR LAST CHANCE TO SAVE ON TAXES

Before Proposed New Tax Change  
For More info: Call A.R.M.  
1-800-527-0249 or in Texas 409-833-5744

### SERVICE • REPAIR • PARTS CONSULTING • DESIGN

### CUNNINGHAM MARINE HYDRAULICS CO., INC.

201 Harrison St. • Hoboken, N.J. 07030  
(201) 792-0500 (212) 267-0328

2030 E. Adams St. • Jacksonville, FL 32202  
(904) 354-0840

TWX 710-730-5224 CMH Hoboken, NJ







**32 PAGES OF IDEAS FOR CRANE USERS:** A new 32-page Cady catalog describes specialized lifting devices for use below crane hooks. It shows crane users ways to make faster attachment to loads, reduce product damage, lift higher and stack closer to save floor space. The catalog lists complete dimensional information on over 300 standard model Pallet Forks, Spreader Beams, Sheet Lifters, Vertical Plate Lifters and seven types of Coil Lifters. Extensive information on custom lifters for hard-to-handle loads and crane loading racks is also included. Capacities range from 500 pounds to over 100 tons. There is a special section on increasing the stability of beam supported loads and information and on the new ANSI/ASME safety standard for Below-the-Hook Lifting Devices. For a free copy of the 32-page Cady catalog,

Circle 63 on Reader Service Card

**FOR SALE**

**MAKE:** FOUR FAIRBANKS MORSE MODEL 38D818 O P DIESEL ENGINES AND GENERATORS  
**HP:** 1800 HP @ 800 RPM  
**CONDITION:** FAIR  
**GENERATORS:** FOUR 268 A GM 100 KW ONE 671 GM 100 KW  
 MANUALS AVAILABLE  
**CONTACT:** SIDNEY PEPPER JR. OR RANDY WEIL AT (305) 685-5161 FOR FURTHER INFORMATION

**NEW WATERTIGHT DOORS IN STOCK**

**SIZES**  
 26"x48" 5/16" Frame 26"x66"  
 26"x60" 1/4" Panel 30"x60"

**STEEL DOGS**  
 6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Built to ABS.

**QUICK ACTING WHEEL OPERATED DOORS AVAILABLE**  
 26"x48" 26"x60" 26"x66" 30"x60"

**NEW 7" RADIUS PANAMA CHOCKS (MEET PANAMA REGULATIONS)**  
 14"x10" CLEAR OPENING

With extended legs for welding to deck, 14" wide on base—length 28"—height 27 1/2". IMMEDIATE DELIVERY FROM STOCK.

12" x 10" IN STOCK

**EXTRA LARGE HEAVY DUTY CHOCK**  
 Clear opening—16"x22"—10" radius. 40" Long—36" high.

**24" PORTABLE DOCK CAPSTAN**  
 20,000 LBS @ 40 FPM

With magnetic brake and controls. 33 HP—230 VDC. Spool diam 16"—26" high. Base: 11'4" long—60" wide—OAH 69". Self-contained, in good running condition. Just purchased from Newport News Shipbuilding, very versatile unit.

**NEW—UNUSED 54' ACCOMMODATION LADDER**

Aluminum, with upper rotating platform and lower fixed platform with roller. Steps are nonfeathering and oval shaped for use in all positions. 24" Wide. Has side roller.

**THE BOSTON METALS COMPANY**

233 E. Redwood St.—(301) 539-1900—Baltimore, Md. 21202  
 Marine Warehouse (301)-752-1077

**MARINE TV ANTENNAS AND DISTRIBUTION SYSTEMS**

- CABIN OUTLETS
- FREE ENGINEERING

MK20CA



**Naval ELECTRONICS, INC.**

5417 JETVIEW CIRCLE  
 TAMPA, FLORIDA 33614  
 (813) 885-6091 TELEX: 289-237(NAVL UR)

Circle 193 on Reader Service Card

**RAMPMASTER**  
 MARINE ALUMINUM GANGWAYS  
 TRUSS OR BEAM TYPE — ANY LENGTH  
 CORROSION RESISTANT  
 Portable Handrail Assemblies  
 ALL TYPES SHIP'S LADDERS PIER STANDS  
 Call Us For Quotes!  
**RAMPMASTER INCORPORATED**  
 9825 OSCEOLA BOULEVARD VERO BEACH, FLORIDA 32960  
 TELEPHONE 305 569-9600

Circle 243 on Reader Service Card

**HBC BUILDS THE BEST BARGES.**

They're best because they are built by craftsmen using:

- sound construction details
- accurate, distortion free materials
- heavy-duty jigs and fixtures
- highest quality welding.

What's more, HBC has the versatility to build them to best suit the needs of your specific cargoes.

**HBC Barge**

Brownsville, Pennsylvania 15417  
 Phone. 412/785-6100



Circle 277 on Reader Service Card

WINCHES CRANES  
 HATCH COVERS  
**DEL GAVIO MARINE HYDRAULICS, INC.**  
 SERVICE • CONSULTING • PARTS  
 Complete Repairs  
 On All Types of Electro Hydraulic Steering Systems  
 Hydraulic Pump Testing, Rebuilding For Certification  
 24 Hour Service, Worldwide  
 207 West Central Ave., Maywood, N.J. 07607  
 Telephone: (201) 843-4700  
 Telex: 132610 DELMARINE

Circle 155 on Reader Service Card

**BARGES FROM ZIDELL**

Built to your specifications  
 For Sale or Lease

You can order a deck, cargo, crane, tank or dry cargo barge built to your exact specifications... and then lease it from Zidell at lower cost than owning your own. A lease plan, custom-tailored to fit your needs, long or short term, gives you the best of both worlds: a barge built to precisely serve your needs, leased from one of the country's best known marine equipment lessors. Send for a free booklet on our leasing and charter programs.

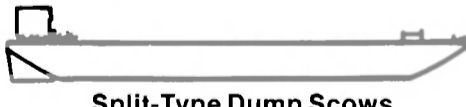
If you're presently operating a barge which has out-lived its original design use, look to Zidell to convert it. We routinely convert lumber and deck barges to oil barges, retrofit oil barges, build floating derricks and virtually anything else you may require in unmanned marine equipment. Send for a free booklet telling what we can do for you in building, fitting, retrofitting or conversion of all kinds of barges.



**Derrick Barges**  
 25 to 200 Tons Capacity



**Bulk Petroleum/Chemical Barges**  
 25,000 to 148,000 bbl.



**Split-Type Dump Scows**  
 1500 cu. yd and up



**Deck Cargo**  
 120' to 400'



3121 S.W. Moody Ave.  
 Portland, Oregon 97201  
 Phone: 503-228-8691 or  
 1-800-547-9259 - RCA Telex 283985  
 Ask for Tom Sherwood or Bill Gobel

Circle 305 on Reader Service Card

# FOR MORE INFORMATION ON EQUIPMENT AND SERVICES ADVERTISED IN THIS ISSUE

CIRCLE THE APPROPRIATE NUMBER ON READER SERVICE CARD OPPOSITE →

ADVERTISER	EQUIPMENT CIRCLE /SERVICE	NO.
AT & T	COMMUNICATIONS SYSTEM	177
ACTION THREADED PRODUCTS	FASTENERS	341
ADVANCED STRUCTURES	PANELS	246
ADVANCED STRUCTURES	DOORS	245
AMERICAN ABRASIVE METALS	NON SLIP COATING	103
AMERICAN PIPING PRODUCTS	LINE BLINDS	101
ARMCO	SHAFTS	147
ARNESON MARINE	PROPULSION SYSTEMS	125
BP MARINE	LUBRICANTS	110
BAILEY CONTROLS	VESSEL MONITORING/CONTROL	175
BAILEY DIV/CMB INDUSTRIES	VALVES/STRAINERS	121
L.S. BAIER	HATCHES	158
BAY SHIPBUILDING	SHIPBUILDING	120
BERGEN DIESEL	DIESEL ENGINES	166
BIRD JOHNSON	PROPELLERS: DESIGN/MANUFACTURE/SERVICE	140
CENTRICO	OIL PURIFIER	131
CINCINNATI GEAR	MARINE GEARS	150
CITYVARET	SHIP REPAIR	205
COLT INDUSTRIES/FAIRBANKS MORSE DIV.	DIESEL ENGINES	160
COLUMBIAN BRONZE	PROPELLERS	135
COMBUSTION ENGINEERING	WASTE HEAT RECOVERY PRODUCTS	206
COMSAT MARITIME SERVICES	COMMUNICATION SERVICES	170
CUMMINS	DIESEL ENGINES	320
DEL GAVIO	HYDRAULICS	155
FRED DEVINE	DIVING/SALVAGE SERVICES	187
DEUTSCH	PIPE CONNECTING SYSTEM	280
A.L. DON	DISSEMBARKATION LADDERS	260
ELDEC	ELECTRONIC SWITCHES	181
ENTERPRISE MARINE	SHIP REPAIR	114
ENVIROVAC	E-VAC SEWAGE SYSTEM	134
ENVIROVAC	ORCA SEWAGE SYSTEM	327
EQUIPMENT ENGINEERING	CENTRIFUGE	128
R.W. FERNSTRUM	GRIDCOOLER	165
FERROUS CORPORATION	FUEL ADDITIVE	141
FITZWRIGHT	SURVIVAL SUITS/EQUIPMENT	221
FINCANTIERI CANTIERI NAVALI ITALIANI	SHIPBUILDING/REPAIR	275
FLAKT	AIR CONDITIONING	325
FURUNO	NAVIGATION/COMMUNICATION SYSTEM	190
GENERAL THERMODYNAMICS	DIESEL ACCESSORIES	105
GIBBS & COX	NAVAL ARCHITECTS	191
GOLAR METALS	INCINERATORS	230
GOLTEN MARINE	MACHINERY REPAIR/SERVICE	151
GREITZER, INC.	GALLEY EXHAUST VENTILATION	145
HBC	BARGE BUILDING/REPAIR	277
HARDWARE SPECIALTY	FASTENERS	240
HILMAN, INC.	ROLLERS	211
HOSE-McCANN TELEPHONE	COMMUNICATIONS EQUIPMENT	142
HOUSTON SHIP REPAIR	SHIP REPAIR/CLEANING/POLLUTION CONTROL	250
HYDRORAFT	CLAMP SYSTEM	171
HYUNDAI HEAVY INDUSTRIES	SHIPBUILDING	180
INFRASONIK AB	BOILER CLEANING SYSTEM	107
INVENTORY LOCATOR SERVICE	ELECTRONIC INFORMATION SYSTEM	225
INTERNATIONAL MARITIME ASSOCIATES	MARKETING SERVICES	300
ITT STANDARD HEAT TRANSFER	HEAT TRANSFER SYSTEMS	231
JIM'S PUMP	PUMP SERVICE/REPAIR	195
JOHNSON RUBBER	BEARINGS	200
	STUFFING BOXES	201
	FENDERING	202
	KEEL COOLERS	203
JOTUN VALSPAR MARINE COATINGS	MARINE COATINGS	183
JUNIPER INDUSTRIES	DOORS/HATCHES/SCUTTLES	342
KAHLENBERG	ELECTRIC HORN/NAVIGATION SAFETY EQUIPMENT	179
WALTER KIDDE	FIRE PROTECTION SYSTEM	309
LIMITORQUE	PNEUMATIC ACTUATORS	263
McCAUSEY LUMBER	MARINE LUMBER	253
MAN B&W	DIESEL ENGINES	340
M.E.K. EQUIPMENT	POLYURETHANE BUMPERS	251

ADVERTISER	EQUIPMENT CIRCLE /SERVICE	NO.
MTU OF NORTH AMERICA	DIESEL ENGINES	241
MARCO	OIL/DEBRIS SKIMMERS	350
MARINE ELECTRIC RPD		
/GALBRAITH PILOT MARINE DIV.	MONITORING/ALARM SYSTEMS	311
MARINETTE MARINE	SHIPBUILDING/REPAIR	344
MARKETEC	WYNN WINDOW WIPERS	330
MARKEY MACHINERY	DECK MACHINERY	331
MARLO COIL	MARINE FANS	291
MASONITE	JOINER PANELS	349
MILLER ELECTRIC	WELDING SYSTEMS	347
L.Q. MOFFITT	BEARINGS	315
MURDOCK ENGINEERING	COUPLINGS	281
NKS	CASTINGS/FORGINGS	321
NAVAL ELECTRONICS	OMNIDIRECTIONAL ANTENNAS	193
NEWPORT NEWS SHIPBUILDING	SHIPBUILDING/REPAIR	185
NORGES VAREMESSE	TRADE SHOW	261
OMNITHRUSTER	THRUSTERS	346
ORIENTAL INDUSTRY	SCALE MODELS	259
PARKER HANNIFIN	FILTERS	287
	VALVES	288
	SCHRADER BELLOWS	289
	ROTARY ACTUATORS	290
PEARLSON	SHIFTLIFT SYSTEMS	115
PHILADELPHIA RESINS	ADHESIVES/COATINGS	229
PHOENIX PRODUCTS	LIGHTING PRODUCTS	235
PORT OF PORTLAND (PORTLAND SHIP REPAIR YARDS)	SHIP REPAIR	343
PRODUCTS RESEARCH & CHEMICAL	MARINE COATINGS	257
RADAR DIGITAL SYSTEMS	NAVIGATION SYSTEMS	161
RAMPMASTER	GANGWAYS/LADDERS	243
RAYTHEON SERVICES	NAVIGATION/COMMUNICATION	
	EQUIPMENT SERVICE	271
RILEY BEAIRD	DESALINATOR	265
RIVA CALZONNI	PROPULSION SYSTEM	254
ROBINSON INDUSTRIES	FANS	301
SKF STEEL	PROPELLER SHAFT COUPLINGS	130
SWDIESEL GULF	DIESEL ENGINES	310
SAMSUNG SHIPBUILDING	SHIPBUILDING/REPAIR	222
SCHUYLER'S BUMPERS	BUMPERS	348
SHIP ANALYTICS/MTRC	SIMULATOR TRAINING	199
SIEMENS	AUTOMATED MONITORING SYSTEMS	210
SOUTHWEST MARINE	SHIPBUILDING/REPAIR	237
SPINNER II	OIL PURIFIER	109
SQUIRE COGSWELL	AIR COMPRESSORS	255
STANDARD RADIO & TELEFON	NAVIGATION EQUIPMENT	332
STRIDER RESOURCES/CLAMPS/CRANE GUARDS/WIRELOCK COMPOUNDS		167
SUDERMAN & YOUNG	TOWING SERVICES	111
SULZER BROS	DIESEL ENGINES	333
SURVIVAL INTERNATIONAL	SURVIVAL SUITS	137
TATE ANDALE	VALVES/STRAINERS	339
THEIMEG	CARGO HANDLING EQUIPMENT MONITORING/CONTROL	102
THOMSON GORDON	BEARINGS	236
TRACOR INSTRUMENTS	NAVIGATION EQUIPMENT	293
TRANSAMERICA DELAVAL/CORPORATE MARINE PROGRAM		
	MARINE COMPONENTS	
	IN EUROPE	219
	IN US & FAR EAST	220
TROY CO.	FASTENERS	285
ULSTEIN MARITIME	Z-DRIVE PROPULSION SYSTEMS	132
ULSTEIN TRADING	VALVE MANIFOLDS	335
VAPOR CORP.	HEAT EXCHANGERS	345
J.M. VOITH	PROPULSION SYSTEMS	112
WARD LEONARD ELECTRIC	ELECTRICAL EQUIPMENT	192
WARTSILA DIESEL	DIESEL ENGINES	302
WASHINGTON CHAIN & SUPPLY	CHAIN SUPPLY/DECK MACHINERY	270
WAUKESHA BEARING	VALVES	162
S.S. WHITE INDUSTRIAL PRODUCTS	REACH RODS	223
WILLCOX HOSE	HOSE/CONNECTORS	322
WILSON WALTON INT.	CORROSION CONTROL SYSTEMS	129
ZF OF NORTH AMERICA	MARINE GEARS	189
ZIDELL	BARGES	305

# BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of **MARITIME REPORTER/Engineering News**. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 477-6700.

## AIR COMPRESSORS

Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND  
 Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928  
 Squire-Cogswell Company, 3411 Commercial Ave., Northbrook, IL 60062

## AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION

Bailey Refrigeration Co., Inc, 2323 Randolph Avenue, Avenel, NJ 07001  
 Flakt AB, Box 8862, S-40272, Gothenburg, Sweden  
 Mechanical Resources Inc., 210 West Side Ave., Jersey City NJ 07305  
 United Technologies, Carrier Transicold Division, P.O. Box 4805, Syracuse NY 13221  
 York International Corp., P.O. Box 1592-361C, York, PA 17405

## ALARM SYSTEMS

Siemens Energy And Automation Inc., 635 Montrose Ave., So. Plainfield, NJ 07080

## ANCHORS AND CHAIN

Baldt Incorporated, P.O. Box 350, Chester, PA 19016  
 G.J. Wortelboer Jr. B.V., Eemhavenstraat 4, P.O. Box 5003, 3008 AA Rotterdam, Netherlands

## ANODES—Cathodic Protection

Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083  
 Federal Harco, P.O. Box 40310, Houston, TX 77240  
 Kaiser Chemicals, 7311 E. 41st St., Tulsa OK 74147  
 Sapphire Technology, Inc., 9370 Sunset Dr., Suite A215, Miami FL 33173  
 Thermal Reduction Company, 1 Pavilion Avenue, Riverside, NJ 08075  
 Wilson, Walton International, Inc., 66 Hudson St., Hoboken, NJ 07030

## AUTOMATION SYSTEMS

Siemens Energy And Automation Inc., 635 Montrose Ave., So. Plainfield, NJ 07080

## BASKET STRAINERS

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

## BEARINGS—Rubber, Metallic, Non-Metallic

Galten Marine Co., Inc., 160 Van Brunt St., Brooklyn NY 11231  
 Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062  
 Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, OH 44309  
 Thomson-Gordon Limited, 3225 Mainway, Burlington, Ontario, Canada L7M 1A6  
 Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

## BOILERS

Aalborg Vaerft, P.O. Box 661, DK-9100 Aalborg DENMARK  
 Combustion Engineering, Inc., Windsor, CT 06095  
 Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144

## MARKETEC, INC., 27 BOWERS LANE, CHATHAM, NJ 07928

## BOILER CLEANING

Asea Stal, 50 Chestnut Ridge Rd., Montvail N.J. 07645  
 Infrasonik AB (an ASEA Stal Co.), S-612 20 Finspong, SWEDEN

## BROKERS

Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, LA 70153  
 Bergeron & Associates, P.O. Box 726, Chalmette LA 70044  
 ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401  
 Jack Faulkner Inc., 2419 Caddy Lane, P.O. Box 371, Flossmoor IL 60422  
 R.J. Keough Co., 39 Mill Rd., Eastchester, NY 10709  
 Mowbray's Tug & Barge Sales Corp., 21 West St., New York, NY 10006  
 Western Maritime, 701 B Street, San Diego, CA 92101

## BRONZES—COMMEMORATIVE

Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

## BUNKERING SERVICE

Belcher Company Inc., 8700 West Flagler, P.O. Box 025500, Miami FL 33152  
 Gulf Oil Trading Co., 535 Madison Ave., New York, NY 10022  
 National Marine Service Inc. (Transport Div.), 1750 Brentwood Blvd., St. Louis, MO 63144  
 Tramp Oil & Marine Ltd., London ENGLAND. Telex: 8812194

## CARGO ACCESS EQUIPMENT

Hiab Cranes & Loaders, Inc., 258 Quigley Blvd., New Castle, DE 19720  
 MacGregor-Navire International A.B., P.O. Box 4111, S-400 40 Gothenburg SWEDEN

MacGregor Navire (U.S.A.) Inc., 135 Dermody St., Cranford, NJ 07016

## CASTINGS/FORGINGS

NKS Industria Pesada, Grupo Industrial, Reforma 404, 140 Piso, Mexico, D.F. 06600

## CHOCKING COMPOUND

InterProducts, Inc., 129 King Road E, Nobleton, Ontario LOG INO Canada  
 InterProducts, Inc., Avon Street Business Center, P.O. Box 1848, Charlottesville, VA 22903

Philadelphia Resins Corp., 20 Commerce St., Montgomeryville, PA 18936  
 Wirelock, 129 King Road E, Nobleton, Ontario LOG INO Canada

## CLAMPS

Inter Product, Inc., Avon Street Business Center, P.O. Box 1848, Charlottesville, VA 22903

## CLOSURES—Marine

Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

## COMPUTERIZED INFORMATION SYSTEMS

Fisher Scientific, 711 Forbes Ave., Pittsburgh PA 15219  
 TIMSCO, 622 Azalea Rd., Mobile, AL 36609  
 Veson Systems, 29 Broadway, Suite 1002, New York, NY 10006

## CONDENSERS/SEPARATORS

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130  
 Wright Austin Co., 3245 Wight St., Detroit MI 48207

## CONTROL SYSTEMS—Monitoring

ASEA, Inc., 4 New King St., White Plains, NY 10604  
 Bailey Controls, 29801 Euclid Avenue, Wickliffe, OH 44092  
 Barringer Research, 304 Carlingview Dr., Rexdale, Ontario, Canada M9W 5G2

Cooper Energy Services, Mount Vernon, OH 43050  
 Ergon, Inc., P.O. Drawer 1639, Jackson, MS 39205  
 Indikon Corp., 26 New St., Cambridge, MA 02138  
 Instruments Computers & Controls Corp., 6942 Haven Creek Dr., Katy TX 77449

Leslie Co., 401 Jefferson Rd., Parsippany, NJ 07054  
 Pandel Instruments Inc., 2100 N. Hwy. 360, Grand Prairie, TX 75050  
 Propulsion Systems, Inc., 21213 76 Ave., Kent, WA 98032  
 Siemens Energy And Automation Inc., 635 Montrose Ave., So. Plainfield, NJ 07080

Telex Inc., 771 First Ave., King of Prussia, PA 19406  
 Thomas Products Ltd., Flow Switch Div., 987 West St., Southington, CT 06489-1023

Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

Valmet Automation A.S., P.O. Box 130, N-3430, Spikkestad, Norway  
 S.S. White Industrial Products, 151 Old New Brunswick Rd., Piscataway, NJ 08854

## CRANES—HOISTS—DERRICKS—WHIRLEYS

The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101  
 Hiab Cranes & Loaders, Inc., 258 Quigley Blvd., New Castle, DE 19720  
 Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235  
 J.D. Neuhaus, Hebezeuge, D5810, Witten Heven, West Germany  
 CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030  
 Cunningham Marine Hydraulics Co. Inc., 2030 E. Adams St. Jacksonville, FL 32202

Manitex, Inc., 2203 Timberlock Place, Suite 130, The Woodlands, TX 77380

## DECK MACHINERY—Cargo Handling Equipment

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, WA 98134

## DECKING—GRATING

Aligned Fiber Composites, Highway 52, South Chatfield, MN 55923

## DIESEL ACCESSORIES—CYLINDER LINERS

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, MA 02360

Galten Marine Co., Inc., 160 Van Brunt St., Brooklyn NY 11231

Illman Jones Inc., 5505 Broadway, American Canyon CA 94589

## DIESEL ENGINE—Spare Parts & Repair

Alban Engine Power, Inc., 6455 Washington Blvd., Baltimore, MD 21227  
 Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021  
 Bergen Diesel A/S, P.O. Box 924, N-5001 Bergen NORWAY; 2110-10 Service Rd., Kenner, LA 70062  
 Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

Cummins Engine Co., Inc., Mail Code 40642, Box 3005 Columbus, IN 47202-3005

Goltens, 160 Van Brunt Street, Brooklyn, NY 11231

Granges Repair Service GMBH, Gutenbergring, 64 D-2000 Hamburg-Norderstedt TX:0215553

Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, Federal Republic of Germany

Sulzer Brothers Inc., 200 Park Ave., New York, N.Y. 10166

Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647

## ELECTRICAL EQUIPMENT

Eldco Corporation, 16700 13th Ave West, P.O. Box 100, Lynwood WA 98036

Lima Electric Co., P.O. Box 918, Lima OH 45802

Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Newmar, P.O. Box 1306, Newport Beach, CA 92663

Ward Leonard Electric, 31 South St., Mt. Vernon, NY 10550

Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

## ELECTRONIC INFORMATION SYSTEMS

Inventory Locator System Inc., 3820 Premier Ave., Memphis TN 38118

## ELECTRONIC SYSTEMS

Marine Electric RPD, Inc., 666 Pacific St., Brooklyn, NY 11217 TX: 125327

Marine Safe Electronics Ltd., 37 Staffen Drive, Concord (Toronto), Ontario CANADA L4K 2X2

## EMULSIFICATION SYSTEMS

Sunbelt Energy Systems, Inc., Park Square, 2105 Park Ave., Suite 14, Orange Park, FL 32073

S/S Research & Development Inc., 1050 State St., Perth Amboy, NJ 08862

Todd Marine Systems, 61 Taylor Reed Place, Stamford, CT 06906

## ENGINE TEST EQUIPMENT

General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Road, Plymouth, MA 02360

## EQUIPMENT—Marine

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94083

Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216

Beaver Tool Co., 1525 SE 29th St., Box 94717, Oklahoma City, OK 73143

Boston Metals Company, 233 E. Redwood St., Baltimore, MD 21202

Thomas Coudon Associates, 6655 Amberton Dr., Baltimore, MD 21227

Daito Engineering Co., Ltd., 10-23 Kawaguchi, 3-chome, Nishi-ku, Osaka JAPAN

Hossfeld Manufacturing Co., P.O. Box 557, Winona MN 55987

Kearfoot Marine Products, 550 South Fulton Ave., Mount Vernon, NY 10550

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

Nicolai Joffe, P.O. Box 5362, 9171 Wilshire Blvd., Beverly Hills, CA 90210

Raytheon Service Company, 100 Roester Rd., Suite 103, Glen Burnie, MD 21061

Transamerica Delaval Inc., Corporate Marine Program, Cowles Rd., Plainville CT 06062

Waterman Supply Co., Inc., 2815 E. Anaheim Street, P.O. Box 596, Wilmington, CA 90748

## EVAPORATORS

Atlas-Danmark Marine & Offshore, Baltorpvej 154, KD-2750 Bllerup, Copenhagen DENMARK

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

## FANS—VENTILATORS—BLOWERS

Joy Manufacturing Company, 338 So. Broadway, New Philadelphia, OH 44663

Jon M. Liss Associates, Inc., 411 Borel Ave., P. O. Box 5554, San Mateo, CA 94402

Marlo Coil, P.O. Box 171, High Ridge, MO 63029

Robinson Industries, P.O. Box 100, Zelenople, PA 16063

## FASTENERS

Action Threaded Products Inc., 7440 W. 100th Place, Bridgeview IL 60455

Hardware Specialty Co. Inc., Ships Division, 48-75 36th St., Long Island City NY 11101

Troy Company, 315 Fairfield Rd, Fairfield, NJ 07006

## FENDERING SYSTEMS—Dock & Vessel

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook VA 22624

## FILTERS

Dahl, J.A. Baldwin Mfg., Co., P.O. Box 610, Kearney, NB 68848

Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928

Parker Filter Division, 16810 Fulton County Rd., #2, Metamora, OH 43540

## FINANCING—Leasing

JMJ Marine Investors Corp., 1525 River Oaks Rd East, Marahan LA 70123

## FIRE PROTECTION, DETECTION & ALARM SYSTEMS

Formica Corp., One Cyanamid Plaza, Wayne NJ 07470  
 Walter Kidde, Walter Kidde Dr., Wake Forest, NC 27586

## FUEL ADDITIVE

Drew Ameroid Marine, One Drew Chemical Plaza, Boonton NJ 07005

## FUEL OIL/LUBE OIL—Analysis & Testing

Ferrous Corporation, 910 108th N.E., P.O. Box 1764, Bellevue, WA 98009  
 Ocean Fleet Services, 1301 Metropolitan Ave., Thorofare, NJ 08086

## FURNITURE

Bailey, Carpenter & Insulation Co., 2323 Randolph Avenue, Avenel, NJ 07001

## GALLEY EQUIPMENT

Greitzer, Inc., 101 Riverdale Rd., Riverdale NJ 07457

## GANGWAYS

Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32960

## GAUGES

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062

## HATCH & DECK COVERS—Chain Pipe

MacGregor-Navire International, A.B., P.O. Box 4111, S-400 40 Gothenburg SWEDEN

MacGregor Navire (U.S.A.) Inc., 135 Dermody St., Cranford, NJ 07016

Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

## HEAT EXCHANGERS

Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

Vapor Corp., 6420 West Howard St., Chicago IL 60648

## HORNS/WHISTLES

Kohlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

## HULL CLEANING

Petroferm Marine, Route 2, Box 280, Amelia Island, FL 32034

Taylor Diving & Salvage Co. Inc., 701 Engineers Rd., Belle Chasse, LA 70037

## HYDRAULICS

Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202

Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116

Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224

CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030

Del Gavio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07607

Hydra-Dynamics, Inc., 2141 Greenwood Ave., Wilmette, IL 60091

Parker Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112

Titeflex Corporation, P.O. Box 54, Springfield, MA 01109

Washington Chain & Supply, Inc., P.O. Box 3646, Seattle, WA 98124

## INERT GAS

Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094

## INSULATION—Cloth, Fiberglass

Bailey, Carpenter & Insulation Co., 2323 Randolph Avenue, Avenel, NJ 07001

Duracote Corp., 350 North Diamond St., Ravenna, Ohio 44266

Superior Energies, Inc. P.O. Drawer 386, Groves, TX 72619

## INSURANCE

Adams & Porter Associates Inc., 510 Bering Dr., Houston TX 77057

## JOINER—Watertight Doors—Paneling

Advanced Structures Corp., 235 W. Industry Ct., Deer Park, NY 11729

Astech, 3030 S. Red Hill Ave., Santa Ana, CA 92711

Bailey Distributors, Inc., 2323 Randolph Avenue, Avenel, NJ 07001

Masonite Commercial Division, Dover, OH 44622

Walz & Krenzer Inc., 1390 Mt. Reed Blvd., Rochester NY 14606

## KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Perko Inc., P.O

Engineering Visions, 1111 Bay Blvd., Chula Vista CA 92011  
Capt. R.J. Fearson & Associates, P.O. Box 983, Tampa, FL 33601  
Christopher J. Foster, Inc., 16 Sintink Drive East, Port Washington, NY 11050  
Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001  
John W. Gilbert Associates, Inc., 66 Long Wharf, Boston, MA 02110  
The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104  
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480  
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107  
Hamilton Cornell Associates, Box 188, Snug Harbor Station, Duxbury, MA 02331  
J.J. Henry Co., Inc., 40 Exchange Place, New York, NY 10005  
Hi-Test Laboratories, Inc., P.O. Box 226, Buckingham C.H., VA 23921  
HydroComp, Inc., 10 Cutts Road, P.O. Box 865, Durham, NH 03824  
Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201  
J.H. Inc. of Virginia, 330 County St., Portsmouth VA 23704  
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073  
James S. Krogen, 1515 NW 7th St., Suite 124, Miami FL 33125  
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225  
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063  
John J. McMullen Associates, Inc., 1 World Trade Center, New York, NY 10048  
Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401  
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, OH 44114  
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, NY 11746  
Marine Power Associates, 1010 Turquoise St., Ste 217, San Diego, CA 92109  
Maritime Design, Inc., 2955 Hartley Rd., Jacksonville, FL 32217  
R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003  
Nelson & Associates, Inc., 610 Northwest 183rd St., Miami, FL 33169  
Nickum & Spaulding Associates, Inc., 2701 First Ave., Seattle, WA 98121  
Northern Marine, P.O. Box 1169, Traverse City, MI 49685  
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, LA 70114  
Omega Marine Engineering Systems Inc., 11757 Katy Freeway, Suite 390, Houston TX 77079  
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, FL 33156  
Q.E.D. Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455  
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105  
Sargent & Herkes Inc., 611 Gravier St., New Orleans, LA 70130  
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, FL 33316  
SEACOR Systems Engineering Corp., 520 Fellowship Rd., Ste C306, Mt. Laurel NJ 08054  
STV/Sanders & Thomas, Inc., 1745 Jefferson Davis Hwy., Arlington, VA 22202  
Seaworthy Systems Inc., 28 Main St., Essex CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 205, Solomons MD 20688; 2 Skyline Pl., 5203 Leesburg Pike, Falls Church VA 22041  
Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004  
George G. Sharp, Inc., 100 Church St., New York, NY 10007  
Simmons Associates, P.O. Box 760, Sarasota, FL 33578  
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235  
Thomas Coudon Associates, 6655 Ambermont Drive, Baltimore, MD 21227  
Timsco, 622 Azalea Road, Mobile, AL 36609  
Tracor Hydraulics, Inc., 7210 Pindell School Rd., Laurel, MD 20707  
Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744

#### NAVIGATION & COMMUNICATIONS EQUIPMENT

AT&T Communications, 412 Mt Kemble Ave., Room N420, Morristown, NJ 07960  
Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080  
Comsat Maritime Services, 22250 Comsat Dr., Clarksburg MD 20871  
A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway  
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080  
General Electric Company, Mobile Communications Division, Lynchburg, VA 24502  
Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610  
Henschel, 9 Hoyt Drive, Newburyport, MA 01950  
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631  
ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202  
Kongsberg Vopenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway  
Naval Electronics, 5479 Jetport Industrial Blvd., Tampa FL 33614  
Nav-Com, Inc., 9 Broadway Drive, Deer Park, NY 11729  
Navigation Sciences Inc., 6900 Wisconsin Ave., Bethesda, MD 20815 TX: 705999  
Perko Inc. (Lights), P.O. Box 6400D, Miami, FL 33164  
Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033  
Raytheon Marine Co., 676 Island Pond Road, Manchester, NH 03103  
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914  
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061  
Robertson-Shipmate, 400 Oser Ave., Huppauge NY 11788  
S.P. Radio A/S, DK 9200 Aalborg, Denmark  
SAIT Inc., 33 Rector St., New York, NY 10006  
Simrad, 2208 NW Market St., Seattle WA 98107  
Sperry Corporation, Rte 29 North, Charlottesville, VA 22906  
Standard Radio & Telefon AB, P.O. Box 501, S-162 15 Vallingby, SWEDEN  
Telesystems, 2700 Prosperity Ave., Fairfax, VA 22031 USA  
Tracor Instruments Austin Inc., 6500 Tracor Lane, Austin, TX 78725

#### OILS—Marine—Additives

B P North America Petroleum, 555 US Route 1, So. Iselin, NJ 08830  
Exxon Company, U.S.A., Room 2323 AH, P.O. Box 2180, Houston, TX 77701  
Mobil Oil Corp., 150 East 42 Street, New York, NY 10017  
Texaco, Inc. (International Marine), 135 East 42nd St., New York, NY 10017

#### OIL/WATER SEPARATORS

Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647  
Equipment Engineering, 666 Baker St., No. 265, Costa Mesa CA 92626  
FAST Systems, Inc., 1717 Sublette, St. Louis, MO 63110  
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND  
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928  
Mitsubishi International Corp., Machinery Div., 520 Madison Ave., New York, NY 10022  
Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062  
Peck Purifier Sales Co., 3724 Cook Blvd., Chesapeake, VA 23323

#### PAINTS—COATINGS—CORROSION CONTROL

American Abrasive Metals Co., 460 Coit St., Irvington NJ 07111  
Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 6868 NorthLoop East, Suite 304, Houston, TX 77028; P.O. Box 10265, New Orleans, LA 70181  
International Paint Company, Inc., 2270 Morris Avenue, Union, NJ 07083  
Jotun Marine Coatings Inc., 175 Penrod Court N&O, Glen Burnie, MD 21061

Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650  
Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203

#### PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings

Amermarine International, P.O. Box 9205, Dundalk, MD 21222  
Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063  
Knights Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567  
Murdock Engineering, P.O. Box 152278, Irving, TX 75015  
Tioga Pipe Supply Co. Inc., 2450 Wheatheaf La., P.O. Box 5997, Philadelphia, PA 19137  
Willcox, P.O. Box 484, Garfield NJ 07026

#### PLASTICS—Marine Applications

Hubeva Marine Plastic, Inc., 390 Hamilton Ave., Brooklyn, NY 11231

#### PNEUMATICS

Limitorque Corporation, 5114 Woodall Rd., Lynchburg, VA 24506

#### PROPELLER POLISHING

Pacific Marine Services, P.O. Box 3400, Terminal Island, CA 90731

#### PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines

Allison Gas Turbine Division, General Motors Corp., P.O. Box 420 Speed code U6, Indianapolis, IN 46206  
Amarillo Gear Co., P.O. Box 1789, Amarillo, Texas 79105  
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043  
Bird Johnson Company, 110 Norfolk St., Walpole, MA 02081  
Bergen Diesel A/S, P.O. Box 924, N-5001 Bergen NORWAY; 2110-10 Service Rd., Kenner, LA 70062  
Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202  
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark  
Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227  
Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511  
Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520  
Combustion Engineering, Inc., Windsor, CT 06095  
Coolidge Propeller, 1608 Fairview Ave. East, Seattle, WA 98102; 3717 Industrial Rd., Pascagoula, MS 39567  
Coolidge-Stone Vickers, Inc., 56 Squirrel Rd., Auburn Hills, MI 48057  
Daihatsu Diesel (USA) Inc., 180 Adams Ave., Hoppauge NY 11788  
Deutz Corp., 7585 Ponce de Leon Circle, Atlanta, GA 30340  
Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505  
General Motors, Electro-Motive Division, LaGrange, IL 60525  
Goltene Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231  
KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 5S7, Canada  
Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Lips Propellers, 3617 Koppers Way, Chesapeake, VA 23323  
M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Holeyb, Denmark  
MTU of North America, 10450 Corporate Dr., Sugarland, TX 77478  
MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046  
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507  
Mitsubishi International Corporation, Mita Kokusai Bldg. 4-28 Mita I-chome, Minato-ku Tokyo 108 Japan  
National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037  
North American Marine Jet P.O. Box 1232 Benton, AR 72015  
Omnithruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670  
Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054  
Inland Water Propulsion Systems, Inc., 580 Walnut St., Cincinnati, OH 45201  
Propulsion Systems, Inc., 21213 76 Ave. So., Kent, WA 98032  
Riva Calzoni, Via Stendhal 34, 20144 Milan ITALY  
SKF Steel, Couplings Div., 22 Waterville Rd., P.O. Box 745, Avon, CT 06001  
S W Diesel Gulf Inc., 1500 Fourth St., Suite F, Harvey, LA 70058  
Schottel of America, Inc., 8375 N.W. 56 St., Miami, FL 33166  
Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland  
Tech Development Inc., 6800 Poe Ave., P.O. Box 14557, Dayton, OH 45414  
Tenford Inc., 200 Jackson Ave., Hoboken, NJ 07030  
Ulstein Maritime Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3  
Ulstein Propellers, N-6065 Ulsteinvik, NORWAY  
Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway  
J.M. Voith GmbH Dept. WERUNG, Postfach 1940 7920 Heidenheim/Brenz, West Germany  
Voith Schneider America, 159 Great Neck Rd., Ste. 200, Great Neck, NY 11021  
Valvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647  
Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072

#### PUMPS—Repairs—Drives

Allweier Pump Inc., 5410 Newport Dr., Rolling Meadows, IL 60008 TX: 270-0444  
Cat Pumps Corp., 1681 94th Lane NE, Minneapolis MN 55434  
CMH Heleshaw, Inc., 201 Harrison St. Hoboken NJ 07030  
Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224  
Del Gavio, 207 W. Central Ave., Maywood, NJ 07607. Telex: 132610 DEL- MARINE  
FMC Coffin Turbo Pump, 326 S Dean St., Englewood NJ 07631  
Goltens, 160 Van Brunt St., Brooklyn, NY 11231  
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND  
Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101  
Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238  
Transamerica Delaval, Pyramid Pump Div., P.O. Box 447, Monroe, NC 28110  
Vita Motivator Company, 200 West 20th St., New York, NY 10011  
Warren Pumps Division, Bridges Avenue, Warren, MA 01083  
Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324

#### REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, NY 11231  
Grasso, Inc., 1101 N. Governor Street, P.O. Box 4799, Evansville, IN 47711-0799  
United Technologies, Carrier Transicold Division, P.O. Box 4805, Syracuse, NY 13221

#### ROPE—Manila—Nylon—Hawsers—Fibers

A.L. Don Co., Foot of Dock St., Matawan, NJ 07747  
Allied Fibers, 1411 Broadway, New York, NY 10018  
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008  
Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666  
Tubbs Cordage Co., P.O. Box 7986, San Francisco, CA 94120-7986  
Vermeire N.V. Industriepark Zwaardveld, B-9160 Hamme, Belgium TX: 21687

#### SANITATION DEVICES—Pollution Control

Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111  
FAST Systems Inc., 1717 Sublette, St. Louis, MO 63110  
Galar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway  
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND  
SCAFFOLDING EQUIPMENT—Work Platforms  
McCaushey Lumber Co., 7751 Lyndon, Detroit, MI 48238

#### SCALE MODELS

Oriental Industry Co., 408-29 Soky-Dong, Mapo-ku Seoul KOREA

#### SCUTTLES/MANHOLES

L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211  
Juniper Industries, 72-17 Metropolitan Ave., Middle Village, NY 11379  
Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

#### SHIPBREAKING—Salvage

Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland, OR 97217  
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

#### SHIPBUILDING EQUIPMENT

Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116  
M.A.N.—GHH, Sterkrade Werfrsabe 112 D-4100 Duisburg 18, West Germany  
MAN—GHH, P.O. Box 110240, D-4200 Oberhausen 11, West Germany  
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, FL 33156  
Total Transportation System Inc., 813 Forest Dr., Newport News, VA 23606  
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 248, N 5201, Os, Norway

#### SHIPBUILDING STEEL

Armco Steel Corp., 703 Curtis St., Middletown, OH 45042  
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
Welded Beam Company, P.O. Box 280, Perry, OH 44081

#### SHIPBUILDING—Repairs, Maintenance, Drydocking

Arsenale Triestino-San Marco Shipyard, Trieste, Italy, U.S. Rep: Marine Technologies & Brokerage, 33 Rector St., New York, NY 10066  
Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116  
Bay Shipbuilding Corp., 605 N. 3rd Ave., Sturgeon Bay, WI 54235  
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1 (In US)-Blohm & Voss CO, Springfield, N.J.  
Brodosplit, Put Udarniku 19, P.O. Box 107, 58000 Split YUGOSLAVIA  
Burrard Yarrows Corporation, P.O. Box 86099, North Vancouver, B.C., Canada  
Cityvarvet AB, Lindholmen, P.O. Box 2753, S-402 76 Goteborg SWEDEN  
Conrad Industries, P.O. Box 790, Morgan City, LA 70380  
Coast Iron & Machine Works, 5225-7th Street E., Tacoma, WA 98424  
Curacao Drydock (U.S.A.) Inc., 26 Broadway, Suite 741, New York, NY 10004  
Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401  
Enterprise Marine & Industrial Repairs Inc., Tyler & Coastwise Streets, Port Newark, NJ 07114  
Fincantieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY  
Gladding-Hearn Shipbuilding, Box D (1 Riverside Ave.), Somerset MA 02726  
Good People Sea And Shore Services Inc., 255 Commercial St., North Sydney, Cape Breton Island, NS CANADA B2A 3M3  
HBC Barge Co. Brownsville, PA 15417  
Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan  
Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530  
Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, KOREA  
Jered Brown Brothers, Inc., 56 S. Squirrel Rd., Auburn Hills, MI 48057  
Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409  
Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094  
Paul Lindenau GmbH, & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany  
Lisnave, Apartado 2138, 1103 Lisbon, Codex PORTUGAL  
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134  
M.A.N. GHH Sterkrade, P.O.B. 110240, D-4200 Oberhausen 11, West Germany

Main Iron Works, Inc., P.O. Box 1918, Houma, LA 70361  
Marathon LeTourneau Offshore, P.O. Box 61865, Houston, TX 77208  
Marco, Inc., 2300 W Commodore Way, Seattle, WA 98199  
Marinette Maine Corporation, Marinette, WI 54143  
Mitsubishi Heavy Industries, Ltd., 5-1, Marunochi 2-chome, Chiyoda-ku, Toyko, 100 Japan  
MonArk Boat Co., P.O. Box 210, Monticello, AR 71655  
Moran Shipping Agencies, 602 Sawyer, Suite 200, Houston, TX 77077  
Mass Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552  
National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048  
Nautilus Surveys Inc., 10822 Sageleaf Lane, Houston, TX 77089  
Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607  
Nichols Brothers Boat Builders Inc., P.O. Box 580, 5400 S. Cameron Rd., Freeland, WA 98249  
Northwest Marine Ironworks, P.O. Box 3109, Portland, OR 97208  
Portland Ship Repair Yard, 5555 N Channel Ave., Portland, OR 97217  
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22  
Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02905  
Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Taepyeong-ro, Chung-ku, Seoul, Korea  
Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113  
Sudoimport, 10 Usperski Per, 103006 Moscow USSR  
Tampa Shipyards Inc., P.O. Box 1277, Tampa, FL 33601  
3. MAJ Associated Shipbuilding Industry, P.O. Box 117, 51001 Rijeka YUGO-SLAVIA  
Todd Shipyards Corporation, One Evertrust Plaza, Jersey City, NJ 07302  
Tracor Marine, P.O. Box 13107, Port Everglades, FL 33316  
Waller Marine, Inc. 11777 Katy Freeway/Suite 395, Houston, TX  
Westport Shipyard, Inc., P.O. Box 1310, Escatawpa, WA 98595  
Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201

#### SHIPPING—PACKING

Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040  
Signet Corporation, 1800 West Loop South, Suite 1600, Houston, TX 77027

#### SIMULATOR TRAINING

Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371  
Ship Analytics/Maritime Training & Research Center, North Stonington Professional Center, N Stonington CT 06359

#### SILENCERS

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

#### STUFFING BOXES

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062  
Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

#### SURVEYORS AND CONSULTANTS

Advanced Technologies Dept. PZ-01, 7926 Jones Branch Dr., McLean, VA 22102  
Frank Jeffrey & Assoc., 5201 Westbank Exp., Suite 206, Marrero, LA 70073

#### SURVIVAL EQUIPMENT

Parkway/Imperial, 241 Raritan St., So. Amboy, NJ 08879  
Survival International, 7859 S 180th St., Kent, WA 98032

#### TANK CLEANING

Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530  
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928  
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094

#### TANK LEVELING INDICATORS

Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062  
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094  
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

#### TORSIONAL VIBRATION SPECIALISTS

T.W. Spaetgens, 156 W. 8th Ave., Vancouver, Canada, V5Y 1N2

# BUYERS DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 477-6700.

## AIR COMPRESSORS

Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND  
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928  
Squire-Cogswell Company, 3411 Commercial Ave., Northbrook, IL 60062

## AIR CONDITIONING AND

### REFRIGERATION—REPAIR & INSTALLATION

Bailey Refrigeration Co., Inc., 2323 Randolph Avenue, Avenel, NJ 07001  
Flakt AB, Box 8862, S-40272, Gothenburg, Sweden  
Mechanical Resources Inc., 210 West Side Ave., Jersey City NJ 07305  
United Technologies, Carrier Transcold Division, P.O. Box 4805, Syracuse NY 13221  
York International Corp., P.O. Box 1592-361C, York, PA 17405

## ALARM SYSTEMS

Siemens Energy And Automation Inc., 635 Montrose Ave., So. Plainfield, NJ 07080

## ANCHORS AND CHAIN

Baldt Incorporated, P.O. Box 350, Chester, PA 19016  
G.J. Wortelboer Jr. B.V., Eemhavenstraat 4, P.O. Box 5003, 3008 AA Rotterdam, Netherlands

## ANODES—Cathodic Protection

Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083  
Federal Harco, P.O. Box 40310, Houston, TX 77240  
Kaiser Chemicals, 7311 E. 41st St., Tulsa OK 74147  
Saphire Technology, Inc., 9370 Sunset Dr., Suite A215, Miami FL 33173  
Thermal Reduction Company, 1 Pavilion Avenue, Riverside, NJ 08075  
Wilson, Walton International, Inc., 66 Hudson St., Hoboken, NJ 07030

## AUTOMATION SYSTEMS

Siemens Energy And Automation Inc., 635 Montrose Ave., So. Plainfield, NJ 07080

## BASKET STRAINERS

Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

## BEARINGS—Rubber, Metallic, Non-Metallic

Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn NY 11231  
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, OH 44309  
Thomson-Gordon Limited, 3225 Mainway, Burlington, Ontario, Canada L7M 1A6

Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

## BOILERS

Aalborg Vaerft, P.O. Box 661, DK-9100 Aalborg DENMARK  
Combustion Engineering, Inc., Windsor, CT 06095  
Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144

Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928

## BOILER CLEANING

Asea Stal, 50 Chestnut Ridge Rd., Montvill N.J. 07645

Infrasonik AB (an ASEA Stal Co.), S-612 20 Finspong, SWEDEN

## BROKERS

Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, LA 70153  
Bergerson & Associates, P.O. Box 726, Chalmette LA 70044  
ECO Inc., 1036 Cape St. Claire Center, Annapolis, MD 21401  
Jack Faulkner Inc., 2419 Caddy Lane, P.O. Box 371, Flossmoor IL 60422  
R.J. Keough Co., 39 Mill Rd., Eastchester, NY 10709  
Mowbray's Tug & Barge Sales Corp., 21 West St., New York, NY 10006  
Western Maritime, 701 B Street, San Diego, CA 92101

## BRONZES—COMMEMORATIVE

Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

## BUNKERING SERVICE

Belcher Company Inc., 8700 West Flagler, P.O. Box 025500, Miami FL 33152

Gulf Oil Trading Co., 535 Madison Ave., New York, NY 10022  
National Marine Service Inc. (Transport Div.), 1750 Brentwood Blvd., St. Louis, MO 63144

Tramp Oil & Marine Ltd., London ENGLAND. Telex: 8812194

## CARGO ACCESS EQUIPMENT

Hiab Cranes & Loaders, Inc., 258 Quigley Blvd., New Castle, DE 19720  
MacGregor-Navire International A.B., P.O. Box 4111, S-400 40 Gothenburg SWEDEN

MacGregor Navire (U.S.A.) Inc., 135 Dermody St., Cranford, NJ 07016

## CASTINGS/FORGINGS

NKS Industria Pesada, Grupo Industrial, Reforma 404, 140 Piso. Mexico. D.F. 06600

## CHOCKING COMPOUND

InterProducts, Inc., 129 King Road E, Nobleton, Ontario LOG INO Canada  
InterProducts, Inc., Avon Street Business Center, P.O. Box 1848, Charlottesville, VA 22903

Philadelphia Resins Corp., 20 Commerce St., Montgomeryville, PA 18936  
Wirelock, 129 King Road E, Nobleton, Ontario LOG INO Canada

## CLAMPS

Inter Product, Inc., Avon Street Business Center, P.O. Box 1848, Charlottesville, VA 22903

## CLOSURES—Marine

Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

## COMPUTERIZED INFORMATION SYSTEMS

Fisher Scientific, 711 Forbes Ave., Pittsburgh PA 15219  
TIMSCO, 622 Azalea Rd., Mobile, AL 36609

Vescon Systems, 29 Broadway, Suite 1002, New York, NY 10006

## CONDENSERS/SEPARATORS

Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

Wright Austin Co., 3245 Wight St., Detroit MI 48207

## CONTROL SYSTEMS—Monitoring

ASEA, Inc., 4 New King St., White Plains, NY 10604  
Bailey Controls, 29801 Euclid Avenue, Wickliffe, OH 44092  
Barringer Research, 304 Carlingview Dr., Rexdale, Ontario, Canada M9W 5G2

Cooper Energy Services, Mount Vernon, OH 43050  
Ergon, Inc., P.O. Drawer 1639, Jackson, MS 39205  
Indikon Corp., 26 New St., Cambridge, MA 02138

Instruments Computers & Controls Corp., 6942 Haven Creek Dr., Katy TX 77449

Leslie Co., 401 Jefferson Rd., Parsippany, NJ 07054  
Pandell Instruments Inc., 2100 N. Hwy. 360, Grand Prairie, TX 75050

Propulsion Systems, Inc., 21213 76 Ave., Kent, WA 98032  
Siemens Energy And Automation Inc., 635 Montrose Ave., So. Plainfield, NJ 07080

Teleflex Inc., 771 First Ave., King of Prussia, PA 19406  
Thomas Products Ltd., Flow Switch Div., 987 West St., Southington, CT 06489-1023

Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

Valmet Automation A.S., P.O. Box 130, N-3430, Spikkestad, Norway  
S.S. White Industrial Products, 151 Old New Brunswick Rd., Piscataway, NJ 08854

## CRANES—HOISTS—DERRICKS—WHIRLEYS

The Crosby Group, Inc., P.O. Box 3128, Tulsa OK 74101  
Hiab Cranes & Loaders, Inc., 258 Quigley Blvd., New Castle, DE 19720  
Marine Travelift, Inc., 49 E. Yew St., Sturgeon Bay, WI 54235

J.D. Neuhaus, Hebezeuge, D5810, Witten Heven, West Germany  
CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030  
Cunningham Marine Hydraulics Co. Inc., 2030 E. Adams St. Jacksonville, FL 32202

Manitex, Inc., 2203 Timberlock Place, Suite 130, The Woodlands, TX 77380

## DECK MACHINERY—Cargo Handling Equipment

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, WA 98134

## DECKING—GRATING

Alligned Fiber Composites, Highway 52, South Chatfield, MN 55923

## DIESEL ACCESSORIES—CYLINDER LINERS

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, MA 02360

Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn NY 11231  
Illman Jones Inc., 5505 Broadway, American Canyon CA 94589

## DIESEL ENGINE—Spare Parts & Repair

Alban Engine Power, Inc., 6455 Washington Blvd., Baltimore, MD 21227

Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021  
Bergen Diesel A/S, P.O. Box 924, N-5001 Bergen NORWAY; 2110-10 Service Rd., Kenner, LA 70062

Colt Industries Inc. Fairbanks Morse Engine Div. 701 Lawton Ave., Beloit, WI 53511

Cummins Engine Co., Inc., Mail Code 40642, Box 3005 Columbus, IN 47202-3005

Goltens, 160 Van Brunt Street, Brooklyn, NY 11231

Granges Repair Service GMBH, Gutenbergring, 64 D-2000 Hamburg-Norderstedt TX:0215553

Markisches Werk GmbH, P.O. Box 1442, D-5884 Halver 1, Federal Republic of Germany

Sulzer Brothers Inc., 200 Park Ave., New York, N.Y. 10166  
Valvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647

## ELECTRICAL EQUIPMENT

Eldec Corporation, 16700 13th Ave West, P.O. Box 100, Lynwood WA 98036

Lima Electric Co., P.O. Box 918, Lima OH 45802  
Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Newmar, P.O. Box 1306, Newport Beach, CA 92663  
Ward Leonard Electric, 31 South St., Mt. Vernon, NY 10550

Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201

## ELECTRONIC INFORMATION SYSTEMS

Inventory Locator Service Inc., 3820 Premier Ave., Memphis TN 38118

Marine Electric RPD, Inc., 666 Pacific St., Brooklyn, NY 11217 TX: 125327  
Marine Safe Electronics Ltd., 37 Staffen Drive, Concord (Toronto), Ontario CANADA L4K 2X2

EMULSIFICATION SYSTEMS  
Sunbelt Energy Systems, Inc., Park Square, 2105 Park Ave., Suite 14, Orange Park, FL 32073

S/S Research & Development Inc., 1050 State St., Perth Amboy, NJ 08862  
Todd Marine Systems, 61 Taylor Reed Place, Stamford, CT 06906

ENGINE TEST EQUIPMENT  
General Thermodynamics Corp., P.O. Box 1105, 210 S. Meadow Road, Plymouth, MA 02360

EQUIPMENT—Marine  
American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94083

Band-It Division, Houdaille Industries, Inc., P.O. Box 16307, Denver, CO 80216

Beaver Tool Co., 1525 SE 29th St., Box 94717, Oklahoma City, OK 73143

Boston Metals Company, 233 E. Redwood St., Baltimore, MD 21202  
Thomas Coudon Associates, 6655 Amberton Dr., Baltimore, MD 21227

Daito Engineering Co., Ltd., 10-23 Kawaguchi, 3-chome, Nishi-ku, Osaka JAPAN

Hossfeld Manufacturing Co., P.O. Box 557, Winona MN 55987

Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, NY 10550

Maritime Power Corp., 200 Henderson Street, Jersey City, NJ 07302

Nicolai Joffe, P.O. Box 5362, 9171 Wilshire Blvd., Beverly Hills, CA 90210

Raytheon Service Company, 100 Roester Rd., Suite 103, Glen Burnie, MD 21061

Transamerica Delaval Inc., Corporate Marine Program, Cowles Rd., Plainville CT 06062

Waterman Supply Co., Inc., 2815 E. Anaheim Street, P.O. Box 596, Wilmington, CA 90748

EVAPORATORS  
Atlas-Danmark Marine & Offshore, Baltorpvej 154, KD-2750 Billerup, Copenhagen DENMARK

Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

FANS—VENTILATORS—BLOWERS  
Joy Manufacturing Company, 338 So. Broadway, New Philadelphia, OH 44663

Jon M. Liss Associates, Inc., 411 Borel Ave., P. O. Box 5554, San Mateo, CA 94402

Marlo Coil, P.O. Box 171, High Ridge, MO 63029

Robinson Industries, P.O. Box 100, Zelenople, PA 16063

FASTENERS  
Action Threaded Products Inc., 7440 W. 100th Place, Bridgeview IL 60455

Hardware Specialty Co. Inc., Ships Division, 48-75 36th St., Long Island City NY 11101

Troy Company, 315 Fairfield Rd., Fairfield, NJ 07006

FENDERING SYSTEMS—Dock & Vessel  
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

Seaward International, Inc., Clearbrook Industrial Park, P.O. Box 98, Clearbrook VA 22624

FILTERS  
Dahl, J.A. Baldwin Mfg., Co., P.O. Box 610, Kearney, NB 68848

Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928

Parker Filter Division, 16810 Fulton County Rd., #2, Metamora, OH 43540

## FINANCING—Leasing

JMJ Marine Investors Corp., 1525 River Oaks Rd East, Marahan LA 70123

FIRE PROTECTION, DETECTION & ALARM SYSTEMS  
Formica Corp., One Cyanamid Plaza, Wayne NJ 07470

Walter Kidde, Walter Kidde Dr., Wake Forest, NC 27586

FUEL ADDITIVE  
Drew Ameroid Marine, One Drew Chemical Plaza, Boonton NJ 07005

FUEL OIL/LUBE OIL—Analysis & Testing  
Ferraus Corporation, 910 108th N.E., P.O. Box 1764, Bellevue, WA 98009

Ocean Fleet Services, 1301 Metropolitan Ave., Thorofare, NJ 08086

FURNITURE  
Bailey, Carpenter & Insulation Co., 2323 Randolph Avenue, Avenel, NJ 07001

GALLEY EQUIPMENT  
Greitzer, Inc., 101 Riverdale Rd., Riverdale NJ 07457

GANGWAYS  
Rampmaster Inc., 9825 Osceola Blvd., Vero Beach, FL 32960

GAUGES  
Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062

HATCH & DECK COVERS—Chain Pipe  
MacGregor-Navire International, A.B., P.O. Box 4111, S-400 40 Gothenburg SWEDEN

MacGregor Navire (U.S.A.) Inc., 135 Dermody St., Cranford, NJ 07016

Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203

HEAT EXCHANGERS  
Industrial Engineering & Equipment Co., 425 Hanley Industrial Ct., St. Louis, MO 63144

Riley-Beaird, P.O. Box 31115, Shreveport, LA 71130

Vapor Corp., 6420 West Howard St., Chicago IL 60648

HORNS/WHISTLES  
Kahlenberg Bros Co., P.O. Box 358, Two Rivers, WI 54241

HULL CLEANING  
Petroferm Marine, Route 2, Box 280, Amelia Island, FL 32034

Taylor Diving & Salvage Co. Inc., 701 Engineers Rd., Belle Chasse, LA 70037

HYDRAULICS  
Aeroquip Corp., 1130 Maynard Road, Jackson, MI 49202

Bardex Hydranautics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA. 93116

Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030, 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224

CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030

Del Gavio Marine Hydraulics Inc., 207 W. Central Ave., Maywood, NJ 07607

Hydra-Dynamics, Inc., 2141 Greenwood Ave., Wilmette, IL 60091

Parker Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112

Titelflex Corporation, P.O. Box 54, Springfield, MA 01109

Washington Chain & Supply, Inc., P.O. Box 3646, Seattle, WA 98124

INERT GAS  
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094

INSULATION—Cloth, Fiberglass  
Bailey, Carpenter & Insulation Co., 2323 Randolph Avenue, Avenel, NJ 07001

Duracote Corp., 350 North Diamond St., Ravenna, Ohio 44266

Superior Energies, Inc. P.O. Drawer 386, Groves, TX 72619

INSURANCE  
Adams & Porter Associates Inc., 510 Bering Dr., Houston TX 77057

JOINER—Watertight Doors—Paling  
Advanced Structures Corp., 235 W. Industry Ct., Deer Park, NY 11729

Astech, 3030 S. Red Hill Ave., Santa Ana, CA 92711

Bailey Distributors, Inc., 2323 Randolph Avenue, Avenel, NJ 07001

Masonite Commercial Division, Dover, OH 44622

Walz & Krenzer Inc., 1390 Mt. Read Blvd., Rochester NY 14606

KEEL COOLERS  
R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858

Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062

Kahlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights  
Midland-Ross Corp., Russellstoll Division, 530 W. Mt. Pleasant Ave., Livingston, NJ 07039

Perko Inc., P.O. Box 6400D, Miami, FL 33164

Phoenix Products Company, Inc., 4769 North 27th Street, Milwaukee, WI 53209

LINE BLINDS  
American Piping Products Inc., Box 1056, New Hyde Park, NY 11040

Stacey/Fetterolf Corp., P.O. Box 103, Skippack, PA 19474

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING  
CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030

Cunningham Marine Hydraulics Co. Inc., 2030 E. Adams St. Jacksonville, FL 32202

Del Gavio, 207 W. Central Ave., Maywood, NJ 07607. Telex: 132610 DEL-MARINE

Jered Brown Brothers Inc., 1300 Coolidge, P.O. Box 2006, Troy, MI 48007

American General/Levin Corp., 445 Littlefield Ave., So. San Francisco, CA 94080

Goltens, 160 Van Brunt St., Brooklyn, NY 11231

METAL MARKER  
J. P. Nissen Company, P.O. Box 188, Glenside PA 19038

MINING  
Rocky Mountain Energy, 10 Longspeak Dr., Box 2000, Broomfield, CO 80020

NAME PLATES—BRONZE—ALUMINUM  
Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS  
Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Hwy., Arlington, VA 22202

Aero Nav Laboratories, Inc., 14-29 112 St., College Point, NY 11356

American Hydromath Inc., Box 2450, Danby-Pawlet Road, Pawlet, VT 05761

American Systems Engineering Corp., P.O. Box 8988, Virginia Beach, VA 23452

Ameritech Corporation, 7 Belver Avenue, Suite 215, N. Kingston, RI 02852

Amerikan Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, MD 20015

Art Anderson Associates, 148 First St., Bremerton, WA 98310

B.C. Research, 3650 Westbrook Mall, Vancouver, B.C. Canada V6S 2L2

Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130

CDI Marine Co., 900 Regency Square Blvd., Suite 203, Jacksonville, FL 32211

C.T. Marine, 18 Church Street, Georgetown, CT 06829

- Engineering Visions, 1111 Bay Blvd., Chula Vista CA 92011  
Capt. R.J. Fearson & Associates, P.O. Box 983, Tampa, FL 33601  
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, NY 11050  
Gibbs & Cox, Inc., 119 West 31st Street, New York, NY 10001  
John W. Gilbert Associates, Inc., 66 Long Wharf, Boston, MA 02110  
The Glosten Associates Inc., 600 Mutual Life Bldg., 605 First Ave., Seattle, WA 98104  
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480  
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107  
Hamilton Cornell Associates, Box 188, Snug Harbor Station, Duxbury, MA 02331  
J.J. Henry Co., Inc., 40 Exchange Place, New York, NY 10005  
Hi-Test Laboratories, Inc., P.O. Box 226, Buckingham C.H., VA 23921  
HydroComp, Inc., 10 Cutts Road, P.O. Box 865, Durham, NH 03824  
Intramarine, Inc., P.O. Box 53043, Jacksonville, FL 32201  
JH Inc. of Virginia, 330 County St, Portsmouth VA 23704  
R.D. Jacobs & Associates, 11405 Main St., Roscoe, IL 61073  
James S. Krogen, 1515 NW 7th St., Suite 124, Miami FL 33125  
Rodney E. Lay & Associates, 13891 Atlantic Blvd., Jacksonville, FL 32225  
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063  
John J. McMullen Associates, Inc., 1 World Trade Center, New York, NY 10048  
Fendall Marbury, 1933 Lincoln Drive, Annapolis, MD 21401  
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, OH 44114  
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, NY 11746  
Marine Power Associates, 1010 Turquois St., Ste 217, San Diego, CA 92109  
Maritime Design, Inc., 2955 Hartley Rd., Jacksonville, FL 32217  
R. Carter Morrell, 715 S. Cherokee, Bartlesville, OK 74003  
Nelson & Associates, Inc., 610 North West 183rd St., Miami, FL 33169  
Nickum & Spaulding Associates, Inc., 2701 First Ave., Seattle, WA 98121  
Northern Marine, P.O. Box 1169, Traverse City, MI 49685  
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, LA 70114  
Omega Marine Engineering Systems Inc., 11757 Katy Freeway, Suite 390, Houston TX 77079  
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, FL 33156  
Q.E.D. Systems Inc., 4646 Witchduck Rd., Virginia Beach, VA 23455  
M. Rosenblatt & Son, Inc., 350 Broadway, New York, NY 10013 and 667 Mission St., San Francisco, CA 94105  
Sargent & Herkes Inc., 611 Gravier St., New Orleans, LA 70130  
Schmah and Schmah, Inc., 1209 S.E. Third Ave., Fort Lauderdale, FL 33316  
SEACOR Systems Engineering Corp., 520 Fellowship Rd., Ste C306, Mt. Laurel NJ 08054  
STV/Sanders & Thomas, Inc., 1745 Jefferson Davis Hwy., Arlington, VA 22202  
Seaworthy Systems Inc., 28 Main St., Essex CT 06426; 17 Battery Pl., New York, NY 10004; P.O. Box 205, Solomons MD 20688; 2 Skyline Pl, 5203 Leesburg Pike, Falls Church VA 22041  
Seaworthy Electrical Systems, 17 Battery Pl. N.Y. N.Y. 10004  
George G. Sharp, Inc., 100 Church St., New York, NY 10007  
Simmons Associates, P.O. Box 760, Sarasota, FL 33578  
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235  
Thomas Coudon Associates, 6655 Amberfont Drive, Baltimore, MD 21227  
Timco, 622 Azalea Road, Mobile, AL 36609  
Tracor Hydraulics, Inc., 7210 Pindell School Rd., Laurel, MD 20707  
Thomas B. Wilson, Associates, 1258 North Avalon Blvd., Wilmington, CA 90744
- NAVIGATION & COMMUNICATIONS EQUIPMENT**  
AT&T Communications, 412 Mt Kemble Ave., Room N420, Morristown, NJ 07960  
Atkinson Dynamics, Section 6, 10 West Orange Ave., South San Francisco, CA 94080  
Comsat Maritime Services, 22250 Comsat Dr., Clarksburg MD 20871  
A/S Elektrisk Bureau, P.O. Box 98, N-1360 Nesbru, Norway  
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080  
General Electric Company, Mobile Communications Division, Lynchburg, VA 24502  
Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610  
Henschel, 9 Hoyt Drive, Newburyport, MA 01950  
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631  
ITT Mackay, 441 U.S. Highway #1, Elizabeth, NJ 07202  
Kongsberg Vopenfabrik, Norcontrol Division, P.O. Box 145, Horten 3191, Norway  
Naval Electronics, 5479 Jetport Industrial Blvd., Tampa FL 33614  
Nav-Com, Inc., 9 Brandywine Drive, Deer Park, NY 11729  
Navigation Sciences Inc., 6900 Wisconsin Ave., Bethesda, MD 20815 TX: 705999  
Perko Inc. (Lights), P.O. Box 6400D, Miami, FL 33164  
Radio-Holland USA, Inc., 6033 South Loop East, Houston, TX 77033  
Raytheon Marine Co., 676 Island Pond Road, Manchester, NH 03103  
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914  
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061  
Robertson-Shipmate, 400 Oser Ave., Hauppauge NY 11788  
S.P. Radio A/S, DK 9200 Aalborg, Denmark  
SAIT Inc., 33 Rector St., New York, NY 10006  
Simrad, 2208 NW Market St., Seattle WA 98107  
Sperry Corporation, Rte 29 North, Charlottesville, VA 22906  
Standard Radio & Telefon AB, P.O. Box 501, S-162 15 Vallingby, SWEDEN  
Telesystems, 2700 Prosperity Ave., Fairfax, VA 22031 USA  
Tracor Instruments Austin Inc., 6500 Tracor Lane, Austin, TX 78725
- OILS—Marine—Additives**  
B P North America Petroleum, 555 US Route 1, So. Iselin, NJ 08830  
Exxon Company, U.S.A., Room 2323 AH, P.O. Box 2180, Houston, TX 77701  
Mobil Oil Corp., 150 East 42 Street, New York, NY 10017  
Texaco, Inc. (International Marine), 135 East 42nd St., New York, NY 10017
- OIL/WATER SEPARATORS**  
Centrico, Inc. (Westfalia Separators), 100 Fairway Court, Northvale, NJ 07647  
Equipment Engineering, 666 Baker St., No. 265, Costa Mesa CA 92626  
FAST Systems, Inc., 1717 Sublette, St. Louis, MO 63110  
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND  
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928  
Mitsubishi International Corp., Machinery Div., 520 Madison Ave., New York, NY 10022  
Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062  
Peck Purifier Sales Co., 3724 Cook Blvd., Chesapeake, VA 23323
- PAINTS—COATINGS—CORROSION CONTROL**  
American Abrasive Metals Co., 460 Coit St., Irvington NJ 07111  
Hempel Marine Paints, Inc., Foot of Currie Ave., Wallington, NJ 07057; 6868 NorthLoop East, Suite 304, Houston, TX 77028; P.O. Box 10265, New Orleans, LA 70181  
International Point Company, Inc., 2270 Morris Avenue, Union, NJ 07083  
Jotun Marine Coatings Inc., 175 Penrod Court N&O, Glen Burnie, MD 21061  
Magnus Maritec International Inc., 150 Roosevelt Pl., P.O. Box 150, Palisades Park, NJ 07650  
Products Research & Chemical Corp., 5454 San Fernando Rd., Glendale, CA 91203
- PIPE-HOSE—Cargo Transfer Clamps, Couplings, Coatings**  
Amermarine International, P.O. Box 9205, Dundalk, MD 21222  
Hydro-Craft Inc., 1821 Rochester Industrial Dr., Rochester, MI 48063  
Knights Piping Inc., 5309 Industrial Road, Pascagoula, MS 39567  
Murdock Engineering, P.O. Box 152278, Irving, TX 75015  
Tioga Pipe Supply Co. Inc., 2450 Wheatshaf La., P.O. Box 5997, Philadelphia, PA 19137  
Willcox, P.O. Box 484, Garfield NJ 07026
- PLASTICS—Marine Applications**  
Hubeva Marine Plastic, Inc., 390 Hamilton Ave., Brooklyn, NY 11231
- PNEUMATICS**  
Limitorque Corporation, 5114 Woodall Rd., Lynchburg, VA 24506
- PROPELLER POLISHING**  
Pacific Marine Services, P.O. Box 3400, Terminal Island, CA 90731
- PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines**  
Allison Gas Turbine Division, General Motors Corp., P.O. Box 420 Speed code U6, Indianapolis, IN 46206  
Amarillo Gear Co., P.O. Box 1789, Amarillo, Texas 79105  
Arma Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043  
Bird Johnson Company, 110 Norfolk St., Walpole, MA 02081  
Bergen Diesel A/S, P.O. Box 924, N-5001 Bergen NORWAY; 2110-10 Service Rd., Kenner, LA 70062  
Boston Metals Co., 313 E. Baltimore St., Baltimore, MD 21202  
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark  
Cincinnati Gear Co., 5657 Wooster Pike, Cincinnati, OH 45227  
Colt Industries Inc. (Fairbanks Morse Engine Div.), 701 Lawton Avenue, Beloit, WI 53511  
Columbian Bronze Corporation, 216 No. Main Street, Freeport, NY 11520  
Combustion Engineering, Inc., Windsor, CT 06095  
Coolidge Propeller, 1608 Fairview Ave. East, Seattle, WA 98102; 3717 Industrial Rd., Pascagoula, MS 39567  
Coolidge-Stone Vickers, Inc., 56 Squirrel Rd., Auburn Hills, MI 48057  
Daihatsu Diesel (USA) Inc., 180 Adams Ave., Happingue NY 11788  
Deutz Corp., 7585 Ponze de Leon Circle, Atlanta, GA 30340  
Elliott Company, 1809 Sheridan Ave., Springfield, OH 45505  
General Motors, Electro-Motive Division, LaGrange, IL 60525  
Golten Marine Co., Inc., 160 Van Brunt St., Brooklyn, NY 11231  
KHD Canada Inc., 180 Rue de Normandie, Boucherville, Quebec J4B 557, Canada  
Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Lips Propellers, 3617 Koppers Way, Chesapeake, VA 23323  
M.A.N.-B&W Diesel, 2 Ostervej, DK-4960 Høleby, Denmark  
MTU of North America, 10450 Corporate Dr., Sugarland, TX 77478  
MWM-Murphy Diesel, 12 Greenway Plaza, Suite 1100, Houston, TX 77046  
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507  
Mitsubishi International Corporation, Mita Kokusai Bldg. 4-28 Mita 1-chome, Minato-ku Tokyo 108 Japan  
National Marine Service Louisiana, Inc., 222 Bayou Rd., Belle Chasse, LA 70037  
North American Marine Jet P.O. Box 1232 Benton, AR 72015  
Omnitruster Inc., 9515 Sorensen Ave., Santa Fe Springs, CA 90670  
Penske GM Power, Inc., 600 Parsippany Road, Parsippany, NJ 07054  
Inland Water Propulsion Systems, Inc., 580 Walnut St., Cincinnati, OH 45201  
Propulsion Systems, Inc., 21213 76 Ave. So., Kent, WA 98032  
Riva Calzoni, Via Stendhal 34, 20144 Milan ITALY  
SKF Steel, Couplings Div., 22 Waterville Rd., P.O. Box 745, Avon, CT 06001  
S W Diesel Gulf Inc., 1500 Fourth St., Suite F, Harvey, LA 70058  
Schottel of America, Inc., 8375 N.W. 56 St., Miami, FL 33166  
Sulzer Brothers, Dept. Diesel Engines, CH-8401 Winterthur, Switzerland  
Tech Development Inc., 6800 Poe Ave., P.O. Box 14557, Dayton, OH 45414  
Tenford Inc., 200 Jackson Ave., Hoboken, NJ 07030  
Ulstein Maritime Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3  
Ulstein Propellers, N-6065 Ulsteinvik, NORWAY  
Ulstein Trading Ltd. A/S, N-6-65, Ulsteinvik, Norway  
J.M. Voith GmbH Dept. WErung, Postfach 1940 7920 Heidenheim/Brenz, West Germany  
Voith Schneider America, 159 Great Neck Rd., Ste. 200, Great Neck, NY 11021  
Volvo Penta of America, P.O. Box 927, Rockleigh, NJ 07647  
Wartsila Power Inc., 5132 Taravella Rd., P.O. Box 868, Marrero, LA 70072
- PUMPS—Repairs—Drives**  
Allweiler Pump Inc., 5410 Newport Dr., Rolling Meadows, IL 60008 TX: 270-0444  
Cat Pumps Corp., 1681 94th Lane NE, Minneapolis MN 55434  
CMH Heleshaw, Inc., 201 Harrison St. Hoboken N.J. 07030  
Cunningham Marine Hydraulics Co., Inc., 201 Harrison St., Hoboken, NJ 07030; 2030 E. Adams St., Jacksonville, FL 32204, TX: 710-730-5224  
Del Gavia, 207 W. Central Ave., Maywood, NJ 07067. Telex: 132610 DEL-MARINE  
FMC Coffin Turbo Pump, 326 S Dean St., Englewood NJ 07631  
Goltens, 160 Van Brunt St., Brooklyn, NY 11231  
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND  
Jim's Pump Repair, 48-55 36th St., Long Island City, NY 11101  
Megator Corporation, 562 Alpha Drive, Pittsburgh, PA 15238  
Transamerica Delaval, Pyramid Pump Div., P.O. Box 447, Monroe, NC 28110  
Vita Motivator Company, 200 West 20th St., New York, NY 10011  
Warren Pumps Division, Bridges Avenue, Warren, MA 01083  
Wilden Pump & Engineering Co., 22060 Van Buren St., P.O. Box 845, Colton, CA 92324
- REFRIGERATION—Refrigerant Valves**  
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, NY 11231  
Grasso, Inc., 1101 N. Governor Street, P.O. Box 4799, Evansville, IN 47711-0799  
United Technologies, Carrier Transcold Division, P.O. Box 4805, Syracuse, NY 13221
- ROPE—Manila—Nylon—Hawsers—Fibers**  
A.L. Dan Co., Foot of Dock St., Matawan, NJ 07747  
Allied Fibers, 1411 Broadway, New York, NY 10018  
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008  
Tubbs Cordage Company, P.O. Box 709, Orange, CA 92666  
Tubbs Cordage Co., P.O. Box 7986, San Francisco, CA 94120-7986  
Vermeire N.V. Industriepark Zwaarveld, B-9160 Hamme, Belgium TX: 21687
- SANITATION DEVICES—Pollution Control**  
Envirovac Inc., 1260 Turret Dr., Rockford, IL 61111  
FAST Systems Inc., 1717 Sublette, St. Louis, MO 63110  
Golar Metal A/S, P.O. Box 70, 4901 Tvedestrand, Norway  
Hamworthy Engineering Ltd., Poole, Dorset BH17 7LA ENGLAND
- SCAFFOLDING EQUIPMENT—Work Platforms**  
McCausey Lumber Co., 7751 Lyndon, Detroit, MI 48238
- SCALE MODELS**  
Oriental Industry Co., 408-29 Sokyo-Dong, Mapo-ku Seoul KOREA
- SCUTTLES/MANHOLES**  
L.S. Baier & Assoc., 7527 NE 33rd Dr., Portland OR 97211  
Juniper Industries, 72-17 Metropolitan Ave., Middle Village, NY 11379  
Mock Manufacturing Inc., 777 Rutland Rd., Brooklyn, NY 11203
- SHIPBREAKING—Salvage**  
Fred Devine Diving & Salvage, Inc., 6211 N. Ensign, Swan Island, Portland, OR 97217  
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, OR 97201
- SHIPBUILDING EQUIPMENT**  
Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA. 93116  
M.A.N.—GHH, Sterkrade Werfsrabe 112 D-4100 Duisburg 18, West Germany  
MAN—GHH, P.O. Box 110240, D-4200 Oberhausen 11, West Germany  
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, FL 33156  
Total Transportation System Inc., 813 Forest Dr., Newport News, VA 23606  
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 248, N 5201, Os, Norway
- SHIPBUILDING STEEL**  
Armco Steel Corp., 703 Curtis St., Middletown, OH 45042  
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
Welded Beam Company, P.O. Box 280, Perry, OH 44081
- SHIPBUILDING—Repairs, Maintenance, Drydocking**  
Arsenale Triestino-San Marco Shipyard, Trieste, Italy, U.S. Rep: Marine Technologies & Brokerage, 33 Rector St., New York, NY 10066  
Bardex Hydraulics, 6338 Lindmar Dr., P.O. Box 1068, Goleta, CA 93116  
Bay Shipbuilding Corp., 605 N. 3rd Ave., Sturgeon Bay, WI 54235  
Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018  
Blohm & Voss AG, P.O. Box 100720, D-2000 Hamburg 1 (In US)-Blohm & Voss CO, Springfield, N.J.  
Brodrasplit, Put Udarniku 19, P.O. Box 107, 58000 Split YUGOSLAVIA  
Burrard Yarrow Corporation, P.O. Box 860999, North Vancouver, B.C., Canada  
Cityvard AB, Lindholmen, P.O. Box 2753, S-402 76 Goteborg SWEDEN  
Conrad Industries, P.O. Box 790, Margan City, LA 70380  
Coast Iron & Machine Works, 5225-7th Street E., Tacoma, WA 98424  
Curacao Drydock (U.S.A.) Inc., 26 Broadway, Suite 741, New York, NY 10004  
Eastern Marine, Inc., P.O. Box 1009, Panama City, FL 32401  
Enterprise Marine & Industrial Repairs Inc., Tyler & Coastwise Streets, Port Newark, NJ 07114  
Financieri SpA Cantieri Navali Italiani, Via Cipro 11, 16129 Genoa ITALY  
Gladding-Hearn Shipbuilding, Box D (1 Riverside Ave.), Somerset MA 02726  
Good People Sea And Shore Services Inc., 255 Commercial St., North Sydney, Cape Breton Island, NS CANADA B2A 3M3  
HBC Barge Co. Brownsville, PA 15417  
Hitachi Zosen Corp., 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan  
Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530  
Hyundai Mipo Dockyard Ltd., 456 Cheonha-Dong, Ulsan, KOREA  
Jered Brown Brothers, Inc., 56 S. Squirrel Rd., Auburn Hills, MI 48057  
Keppel Shipyard Limited, 325 Telok Blangah Road, P.O. Box 2169, Singapore 0409  
Koch Ellis Barge & Ship Service, P.O. Box 9130, Westwego, LA 70094  
Paul Lindenau GmbH, & Co., Schiffswerft u. Maschinenfabrik, D-2300 Kiel-Friedrichsort, West Germany  
Lisnave, Apartado 2138, 1103 Lisbon, Codex PORTUGAL  
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, WA 98134  
M.A.N. GHH Sterkrade, P.O. Box 110240, D-4200 Oberhausen 11, West Germany  
Main Iron Works, Inc., P.O. Box 1918, Houma, LA 70361  
Marathon LeTourneau Offshore, P.O. Box 61865, Houston, TX 77208  
Marco, Inc., 2300 W Commodore Way, Seattle, WA 98199  
Marinette Maine Corporation, Marinette, WI 54143  
Mitsubishi Heavy Industries, Ltd., S-1, Marunochi 2-chome, Chiyoda-ku, Tokyo, 100 Japan  
MonArk Boat Co., P.O. Box 210, Monticello, AR 71655  
Moran Shipping Agencies, 602 Sawyer, Suite 200, Houston, TX 77077  
Moss Point Marine Inc., P.O. Box 1310, Escatawpa, MS 39552  
National Marine Service (Shipyard Division), P.O. Box 38, Hartford, IL 62048  
Nautilus Surveys Inc., 10822 Sageleaf Lane, Houston, TX 77089  
Newport News Shipbuilding, 4101 Washington Ave., Newport News, VA 23607  
Nichols Brothers Boat Builders Inc., P.O. Box 580, 5400 S. Cameron Rd., Freeland, WA 98249  
Northwest Marine Ironworks, P.O. Box 3109, Portland, OR 97208  
Portland Ship Repair Yard, 5555 N Channel Ave., Portland, OR 97217  
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22  
Promet Marine Services Corp., 242 Allens Ave., Providence, RI 02905  
Samsung Shipbuilding & Heavy Industries Co., Ltd., Samsung Main Bldg. 250, 2Ka, Taepyeong-ro, Chung-ku, Seoul, Korea  
Southwest Marine, Inc., P.O. Box 13308, San Diego, CA 92113  
Sudoimport, 10 Usperiski Per., 103006 Moscow USSR  
Tampa Shipyards Inc., P.O. Box 1277, Tampa, FL 33601  
3. MAJ Associated Shipbuilding Industry, P.O. Box 117, 51001 Rijeka YUGOSLAVIA  
Todd Shipyards Corporation, One Everstret Plaza, Jersey City, NJ 07302  
Tracor Marine, P.O. Box 13107, Port Everglades, FL 33316  
Waller Marine, Inc. 11777 Katy Freeway/Suite 395, Houston, TX  
Westport Shipyard, Inc., P.O. Box 308, Westport, WA 98595  
Zidell Explorations, Inc., 3121 S.W. Moody Street, Portland, OR 97201
- SHIPPING—PACKING**  
Pilotage Consultants, Inc., P.O. Box 2046, New Hyde Park, NY 11040  
Signet Corporation, 1800 West Loop South, Suite 1600, Houston, TX 77027
- SIMULATOR TRAINING**  
Marine Safety International, Marine Air Terminal, LaGuardia Airport, NY 11371  
Ship Analytics/Maritime Training & Research Center, North Stonington Professional Center, N Stonington CT 06359
- SILENCERS**  
Riley-Beard, P.O. Box 31115, Shreveport, LA 71130
- STUFFING BOXES**  
Johnson Rubber Co., Duramax Marine Div., 16025 Johnson St., Middlefield, OH 44062  
Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241
- SURVEYORS AND CONSULTANTS**  
Advanced Technologies Dept. PZ-01, 7926 Jones Branch Dr., McLean, VA 22102  
Frank Jeffrey & Assoc., 5201 Westbank Exp., Suite 206, Marrero, LA 70073
- SURVIVAL EQUIPMENT**  
Parkway/Imperial, 241 Raritan St., So. Amboy, NJ 08879  
Survival International, 7859 S 180th St., Kent, WA 98032
- TANK CLEANING**  
Houston Ship Repair, 1621 Woods Dr., P.O. Box 489, Channelview, TX 77530  
Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928  
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094
- TANK LEVELING INDICATORS**  
Oil Recovery Systems, Inc., 1420 Providence Hwy., Norwood, MA 02062  
Saab Tank Control, One Harmon Plaza, Secaucus NJ 07094  
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062
- TORSIONAL VIBRATION SPECIALISTS**  
T.W. Spaetgens, 156 W. 8th Ave., Vancouver, Canada, V5Y 1N2

## Big Multipurpose Ship Delivered By Wartsila-Turku To USSR



Multipurpose Vaydaghubsky can operate as oil recovery vessel, dredge or fireboat.

Wartsila's Turku Shipyard in Finland recently delivered the 12,000-dwt oil recovery vessel/suction dredge Vaydaghubsky to V/O Sudoimport of Moscow. The new vessel is said to be the largest of her kind in the world. In addition to her oil recovery role, she can be operated as a suction dredge in the oil fields when artificial islands are being built. Other capabilities are fire fighting and receiving bilge and sewage water from drilling platforms and other vessels.

The vessel is equipped with flexible oil booms that extend to a width of 60 meters. With the help of two tugboats, this width of coverage can be extended to 250 meters. The oil/water mixture is brought aboard using two floating skimmers. Collecting rate is 800 cubic meters per hour, and the carrying capacity of liquid cargo is 10,000 cubic meters. The vessel is equipped with an oil/water separator with a capacity of 300 cubic meters per hour.

Dredging down to a depth of 30 meters is performed by means of two suction heads. One of the suction pipes can be lengthened with a submerged pump unit down to a working depth of 50 meters. The capacity of each pump is 13,000 cubic meters per hour. Cargo capacity for the dredging spoil is about 7,600 cubic meters, and it can be dumped into the sea through bottom hatches or pumped ashore via a pipeline.

For firefighting operations, two big water/foam cannons are fitted on the poop deck, each with a capacity of 1,200 cubic meters per hour; these fulfill the requirements of Fire Fighting Class I. In addition, three small water/foam monitors are installed on the main deck.

The Vaydaghubsky has an overall length of 132 meters, beam of 22 meters, and depth of 8.5 meters (433 x 72.2 x 27.9 feet). Propulsion is provided by two Wartsila/Pielstick 8 PC 2 6L-400 diesel engines with a combined output of 11,800 bhp.

The special applications of this vessel require good maneuvering capabilities. After intensive research and model tests, Wartsila decided to install two controllable-pitch propellers in steering nozzles, as well as two 670-bhp bow thrusters.

For determining position in dredging operations, the vessel has a special navigation system based on both land and underwater stations. This system is said to provide a position accuracy of about one meter.

For information and free literature on Wartsila's facilities and shipbuilding capabilities,  
**Circle 64 on Reader Service Card**

## Atlas-Danmark Freshwater Generators For Surimi Processors —Free Literature Available

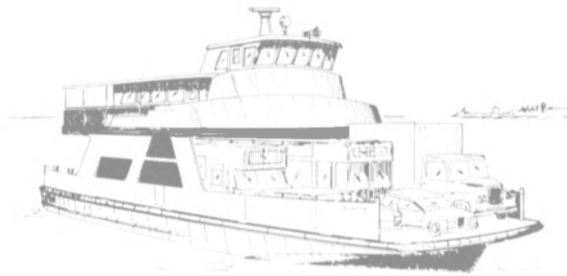
Atlas-Danmark Marine and Offshore, a division of Atlas-Danmark A/S, one of the world's leading manufacturers of heavy duty watermakers, has further strengthened its position in the field of evaporative-type watermakers and freshwater generators with the introduction of specially designed units to meet the high demands for quality freshwater of floating surimi processors.

Approximately one gallon of freshwater is needed to make one pound of high quality surimi, so the ability to make large amounts of water at a minimum energy cost is important. Atlas has developed multi-effect watermakers with dual heating sources for utilizing the waste heat from diesel engines, both cooling water and exhaust heat, to meet the demands for low-cost water.

For example, waste heat from a 2,500 hp engine will produce approximately 100,000 gallons of freshwater per day. Atlas watermakers cover a range from 250 to 265,000 gallons per day per unit.

For free color literature on the new freshwater generators and Atlas-Danmark's other marine and offshore products,  
**Circle 68 on Reader Service Card**

## Blount Marine Lays Keel For Neuman Boat Line Ferry



Artist's conception of the M/V Endeavor being built by Blount Marine for Neuman Boat Line Company. Two Caterpillar 3508 TI engines will enable the ferry to cruise at 15 mph, allowing 50-minute round-trip service between Marblehead and Kelleys Island, Ohio.

Blount Marine Corporation of Warren, R.I., has laid the keel for a ferry for the Neuman Boat Line Company of Sandusky, Ohio.

Constructed of American Steel, the double-ended ferry will be 101 feet long, with a 34½-foot beam. Marine architect **Timothy Graul** of Sturgeon Bay, Wis., designed the ferry which will be partially decked over, creating spacious cabin space. Two Caterpillar 3508 TI engines will develop 1,550 horsepower, enabling the 15-vehicle, 300-passenger ferry to cruise at 15 mph. This will allow 50-minute round-trip service between Marblehead and Kelleys Island, Ohio.

According to **John A. Neuman**, president of Neuman Boat Line, the plans are to take delivery May 1, 1987. The vessel will be brought

to Sandusky via the St. Lawrence Seaway and go into service by Memorial Day.

To be named the M/V Endeavor, she will be the 12th boat to be owned by the 70-year-old company. Retaining four boats in the present fleet, the M/V Endeavor will replace the M/V Corsair which has been sold to the Arnold Transit Company of Macinac Island, Mich.

For further information on Blount Marine's facilities and capabilities,  
**Circle 67 on Reader Service Card**

## Remanufactured Crankshafts That Meet Marine Society Requirements Now Available

Caterpillar now offers crankshafts through the Caterpillar Remanufactured Products Program that meet marine society approval requirements. These are new crankshafts with standard diameter journals. The acquisition cost of these "upgrade-to-new" crankshafts is lower because of the value of the returned core. Priced at 55-60 percent of a new crankshaft with exchange of acceptable core, users can save substantially.

In addition to the marine society-approved crankshafts, the Caterpillar Remanufactured Products Program now offers a broad selection of high-quality Caterpillar Remanufactured Products including starters, alternators, connecting rods, fuel injection pumps, governors, fuel nozzles, cylinder heads, unit injectors, and oil pumps. They are available directly off the shelf from over 300 outlets in North America. Caterpillar Remanufactured Parts and Components carry same as new warranty. Plus, warranty is honored by all authorized Caterpillar Engine parts and service locations worldwide.

For further information about the Caterpillar Remanufactured Products Program and complete warranty detail,  
**Circle 66 on Reader Service Card**

## New Color Brochure Introduces Limiterque HR Series Quarter Turn Pneumatic Actuators

A new six-page color brochure details Limitorque's new quarter-turn pneumatic actuators.

Featuring cutaway color photographs, the publication covers double-acting and spring returns with torque output ranges from 70 to 390,000 inch/lbs. on supply pressures from 40 to 150 psi.

In addition to specifications and applications, the new brochure includes information on such improvements as the double scotch yoke construction that provides superior torque characteristics with total valve control reliability, adjustable stroke stops from 80°-100° of travel, cast iron construction for greater strength in harsh environments, and optional controls.

Improved slim line design provides ease of installation, plus greater balance and symmetry.

For free brochures and more information,  
**Circle 65 on Reader Service Card**

### TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.

Bulkfleet Marine Corporation, 1800 West Loop S., Ste 1600, Houston, TX 77027  
Curtis Bay Towing, World Trade Center, Suite 800, Baltimore MD 21202  
Jack Faulkner, Inc., 1005 W. Harimaw Ct., Metairie, LA 70001  
McAllister Bros., Inc., 17 Battery Pl., New York, NY 10004  
McDonough Marine Service, P.O. Box 26206, New Orleans, LA  
Moran Towing & Transportation, Two Greenwich Plaza, Greenwich CT 06830  
National Marine Service, Transport Div., 1750 Brentwood Blvd., St. Louis, MO 63144  
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, TX 77002

### VALVES AND FITTINGS

Bailey, Division of CMB Industries, P.O. Box 8070, Fresno, CA 93747  
Boston Metals Company, 233 E. Redwood St., Baltimore, MD 21202  
Cajon Co., 9760 Shepard Rd., Macedonia, OH 44056  
Cla-Val Co., P.O. Box 1325, Newport Beach, CA 92663  
Crawford Fitting Company, 29500 Solon Road, Solon, OH 44139  
Elliott Manufacturing Co., Inc. (Remote Valve Operating Equipment), P.O. Box 773, Binghamton, NY 13902  
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207  
Metropolitan Plumbing Supply, 5000 2nd Street, Long Island City, NY 11101  
Nupro Co., 4800 E. 345th St., Willoughby, OH 44094  
Parker Hydraulic Valve Division, 520 Ternes Avenue, Elyria, OH 44035  
Parker Actuator Division, 9948 Rittman Road, P.O. Box 450, Wadsworth, OH

44281-0450  
Parker Systems Division, 651 Robbins Drive, Box 3500, Troy, MI 48007-3500  
Pittsburgh Brass Manufacturing, Sandy Hill Rd., R.D. 6 Box 387-A, Irwin, PA 15642  
Stacey/Fetterolf Corporation, P.O. Box 103, Skippack, PA 19474  
Stockham Valves & Fittings, Box 10326, Birmingham, AL 35202  
Swagelok Company, 5171 Hudson Dr., Hudson, OH 44236  
Tate Andale Inc., 1941 Landsdowne Rd., Baltimore, MD 21227  
Teleflex Inc., 771 First Ave., King of Prussia, PA 19406  
Waukesha Bearings Corp., 405 Commerce St., P.O. Box 798, Waukesha, WI 53186  
Whitey Co., 318 Bishop Road, Highland Heights, OH 44143  
William E. Williams Valve Corporation, 38-52 Review Avenue, Long Island City, NY 11101  
Zidell Explorations, Inc. (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

### VIBRATION ANALYSIS

DLI Engineering Corp., 253 Winslow Way West, Bainbridge Island, WA 98110  
Vibranalysis Engineering Corp., 4380 S. Wayside, Suite 100, Houston TX 77087

### WATER PURIFIERS

Atlas-Danmark Marine & Offshore Baltorpej, 154 DK-2750 Ballerup, Copenhagen, Denmark, TX 35177 Atlas DK  
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559

Riley-Beard, P.O. Box 31115, Shreveport, LA 71130

### WEATHER CHART RECORDERS

Alden Electronics, 40 Washington St., Westborough, MA 01581

### WELDING

Miller Electric Mfg. Co., P.O. Box 1079, Appleton, WI 54912

### WELDING EQUIPMENT

Enerjee Ltd., 32 S. Lafayette Ave., Morrisville, PA 19067

### WINCHES AND FAIRLEADS

Fritz Culver, Inc., P.O. Box 569, Covington, LA 70434

Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134

Nashville Bridge Co., P.O. Box 239 Nashville TN 37202

Smith Berger Marine Inc., 516 S. Chicago St., Seattle, WA 98108

### WINDOWS

Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, NY 10550

### WINDOW WIPERS

Marketec, Inc., 27 Bowers Lane, Chatham, NJ 07928

### WIRE AND CABLE

Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008

Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055

Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

### WIRE ROPE—Slings

Atlantic Cordage Corp., 60 Grant Ave., Carteret, NJ 07008

Bethlehem Steel Corp., Martin Tower, Bethlehem, PA 18018

A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747

### ZINC

Smith & McCracken, 153 Franklin St., New York, NY 10013

# ADVERTISE IN THESE SPECIAL EMPHASIS ISSUES

BEST READ  
BECAUSE EVERY ISSUE  
IS CURRENT



SPECIAL NAVY  
COVERAGE

★ BONUS DISTRIBUTION  
AT MEETINGS & SHOWS

Subject to Change

## FOR MORE MARINE SALES

### JANUARY 1987 ISSUE

Advertising Closing Date—December 10

- Special Workboat/Shallow Draft Industry Issue
- PLUS—A wealth of current marine business and technical information first.

### FEBRUARY 1987 ISSUE

Advertising Closing Date—January 10

- 1987 NAVY ANNUAL
- U.S. Navy Shipbuilding Programs
- PLUS—A wealth of current marine business and technical information first.

### MARCH 1987 ISSUE

Advertising Closing Date—February 9

- ★ • RTCM Annual Meeting (Radio Technical Commission for Maritime Services) April 13-15, San Francisco
- Naval Technology & Shipbuilding Edition—A Special Magazine Supplement—
- PLUS—A wealth of current marine business and technical information first.

### APRIL 1987 ISSUE

Advertising Closing Date—March 12

- ★ • Offshore Technology Conference Preview April 27-20, Houston
- ★ • A.S.N.E. Day Preview (American Society of Naval Engineers), April 30—May 1, Washington, D.C.
- PLUS—A wealth of current marine business and technical information first.

## THE DOMINANT WORLDWIDE MARINE INDUSTRY MAGAZINE

- World's Largest Requested Total Circulation
- World's Largest Circulation to Buying-Influence Readers
- Largest U.S. Circulation to Buyers
- Largest Circulation to Navy Buyers
- Full Market Coverage—Ocean, Offshore, Inland, Navy
- Best Quality Circulation Records
- Most Current Circulation Records
- Current Editorial Content
- Largest Number of Advertisers
- Largest Number of Advertising Pages
- Produces Largest Number of Sales Leads

FOR BEST  
ADVERTISING  
RESULTS

**MARITIME  
REPORTER**  
AND  
ENGINEERING NEWS

118 East 25th Street  
New York, NY 10010  
(212) 477-6700



Houston/Galveston/Orange/Corpus Christi, Texas USA

# HSR HOUSTON SHIP REPAIR, INC.

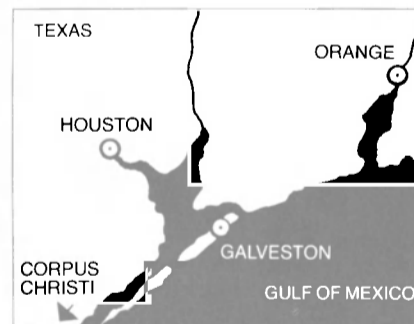
## Complete topside ship repair, cleaning, and pollution control!

The facilities at our locations have the capacity to resolve your ship repair and maintenance problems.

Our Houston Ship Channel berth on Brady Island accommodates ships to 780', full utilities, 25T tower crane, and complete workshops.

The Orange, Texas facilities have two working berths accommodating ships to 700', full utilities, 50T floating crane, and complete fabrication and machine shops.

Experienced and reliable personnel handle all phases of ship repair, diesel repair and reconditioning, electric motor rewinding and trouble-shooting, cleaning, exterior painting, and tank lining. When your ship leaves our facilities *it runs!*



**HOUSTON SHIP REPAIR, INC.**

16201 Wood Drive, P.O. Box 489  
Channelview, Texas 77530 USA  
(713) 452-5841, Telex: 792282

# 29 YEARS OF PERFORMANCE

# OVER 99% OF ALL SHIPLIFT OPERATIONS AROUND THE WORLD ARE ON SYNCROLIFTS®

There are very good reasons why Syncrolift is the world leader in shiplift technology with more than 160 installations in 59 countries. If you're planning a shipyard and comparing docking systems, find out why your best move is with Syncrolift.®

The largest shiplift platform in the world – 655 ft. long by 106 ft. wide at Todd Pacific Shipyards Corporation, Los Angeles Division.

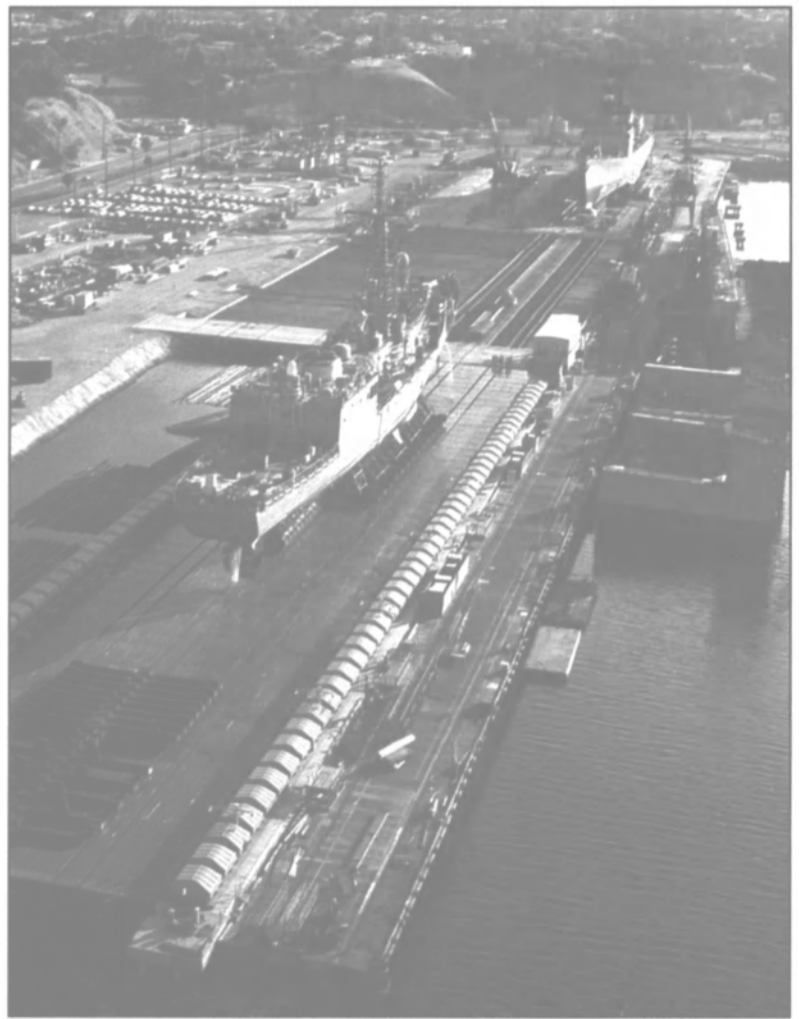


Photo by Joseph Ernest



The highest capacity per metre shiplift in the world – 200 tons per metre for launching concrete caissons at Yunotsu, Japan.

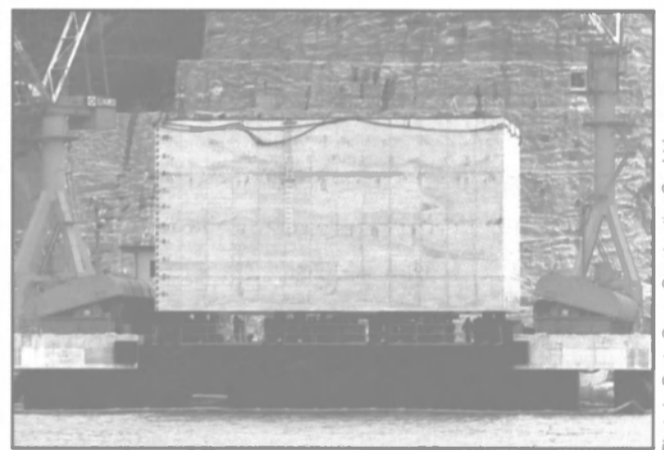


Photo by Penta-Ocean Construction Co., Ltd.

The greatest lifting capacity shiplift in the world – 24,000 tons for nuclear submarines at Barrow-in-Furness, England.

# SYNCROLIFT

## World Leaders in Shiplift Technology

**PEARLSON ENGINEERING COMPANY, INC.**

8970 S.W. 87th Court, Miami, FL 33176 • U.S.A. • (305) 271-5721 • Facsimile: (305) 595-5134  
Mailing Address: P.O. Box 560008, Miami, FL 33256 • U.S.A. • Telex: 051-9340 SYNCROLIFT MIA

Circle 115 on Reader Service Card

A MEMBER OF THE  GROUP

Syncrolift Systems are patented in the United States and other countries.